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Guidance to the Verification of Lift Shaft Lifting Equipment Support Structures

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1.0 Introduction

To facilitate the installation, maintenance and inspection of lifts there will commonly be a supporting structure with attachment points for lifting equipment at the top of a lift shaft. These structures are generally in two similar forms;

1. Steel beam(s) spanning the top of the lift shaft with a lifting equipment attachment point(s) (commonly referred to as a lifting eye) along the span.

   Note: in some cases a round sling is choked around the beam to act as an attachment point. This is not recommended without the use of suitable edge protection as the edges of the beam can cut the sling. Refer to LEEA Code Of Practice for the Safe Use of Lifting Equipment (COPSULE) sections 1A5.4.6 and 17.9 for further guidance.

2. A precast concrete slab or site cast slab using decking, with;
   - cast in threaded socket(s) to which a lifting equipment attachment point is fitted; or
   - Lifting equipment attachment point installed through the slab with a bearing plate on the top; or
   - Lifting equipment attachment point fixed to the underside of the slab using fixings suitable for cracked concrete.

These structures are commonly used for both goods lifting and people carrying applications. On the odd occasion they are sometimes used for fall arrest applications. However it should be noted that in most cases fall arrest anchors are usually fitted to the carriage or platform suspended from the beam.

As a result of there being no specific standard for these structures there is much confusion as to how they should be verified by design, following installation and periodically while in service. This LEEA guidance has therefore been developed as a means of setting a bench mark and standard approach to their verification. This guidance draws on LEEA experience of and requirements for other similar forms of lifting equipment support structures, such as crane gantries, hoist runways, jibs, etc.

2.0 Scope.

This guidance has been developed as a means to support the designer, manufacturer, installer, tester and examiner in terms of the correct method of verifying lift shaft lifting equipment support structures.

This guidance applies to goods lifting, people carrying and fall arrest using a lift shaft beam assembly.

3.0 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Lift Shaft Beam

A steel beam or concreted slab simply supported at the top of the lift shaft for the purpose of supporting lifting equipment and/or fall arrest equipment. See figure 1

3.2 Lifting eyes.

A fixed or removable anchor point fitted to the beam to which lifting equipment can be suspended. See figure 1.

Note 1: Some lifting eyes used are general purpose lifting eyes, i.e. BS EN ISO 3266 Eyebolts. General purpose items such as these are also intended for use as lifting accessories and as such will be CE marked. Bespoke lifting eyes fabricated and placed on the market to be used to suspend machinery in a lift shaft do not require CE marking as they are not covered by any EU Directive.

Note 2: In some cases general purpose beam clamps are used.

3.3 Fall arrest anchor

An anchor point designed in accordance with EN 795 to which fall arrest PPE can be fitted.

Note: EN 795 anchors are not suitable for general lifting purposes, however they can be used for rescue. In the event the anchor is used for rescue then it cannot continue in service until it has been fully assessed by a competent person.

3.4 Lift Shaft Beam Assembly

A single lift shaft beam fitted with lifting eye(s) and/or fall arrest anchor(s)

Figure 1: Steel Lift Shaft Beam with lifting eyes (left) and Concrete slab with lifting eyes (right).

4.0 Standards and legislation

In general the following standards would apply for goods lifting and people carrying, however in the latter case the factors of safety used in the design standards for goods lifting shall be doubled.

- EN 1993 – 6 – Design of steel structures, part 6, crane support structures.
- BS 2853 Specification for the testing of steel overhead runway beams for hoist blocks.

For fall arrest applications the standard would be EN 795.

For multi-purpose applications, then the requirements of the above shall be combined and the worst case loading conditions of the combinations determined.

In terms of supply legislation, section 6 of the Health and Safety At Work etc Act 1974 always applies. However, additional legisaltion may have to be considered depending on the design intent of the structure.

4.1 Construction Products Regulations

If the lift shaft beam also has a structural function in relation to the building, then the Construction Products Regulations (CPR) may also apply, refer to LEEA 058 Guide to Construction Products Regulations and Lifting Equipment Support Structures for information on when this may be appropriate. If CPR does apply then the structure requires CE marking. However, if the lift shaft beam is solely there to support the lifting equipment, then LEEA considers the structure as a runway beam and exempt from CPR, refer to LEEA 058 Guide to Construction Products Regulations and Lifting Equipment Support Structures.

4.2 Fall arrest

For lift shaft beams and lifting eyes that can be used for fall arrest the PPE directive applies and the structure must be CE marked. These structures are also within the scope of EN 795 class B and the eyes are within scope of EN 795 Class A

4.3 In Service use.

Lift shaft beams and lifting eyes are considered as work equipment and therefore the Provision and Use of Work Equipment Regulations (PUWER) will apply regardless of the intended use. In addition to this, the Lifting Operations and Lifting Equipment Regulations (LOLER) would apply if used for a lifting operation. Finally if the lift shaft beam is used for people carrying and/or fall arrest, then the Work at Height Regulations 2005 would also apply.

5.0 Supply Documentation.

Due to the differences in standards and legislation concerning lift shaft beams the supply documentation requirements vary. The following sections describe the requirements for each.

5.1 Lift Shaft Beam assembly for the support of lifting appliances only

These are considered as supporting structures and are therefore not within the scope of the Supply of Machinery (Safety) Regulations 2008. This means CE marking and EC Declaration of Conformity are not applicable. They should however be sent with a manufacturer's certificate that contains at least the following information:

- Name and address of the manufacturer
- Description of the equipment, type, and safe working load(s),
- Serial number, if any
- The test loads to be applied,
- Name, position and signature of the responsible person.

Note: if general purpose equipment such as an eyebolt, refer to section 3.2, is used in the assembly then the manufacturers certificate should include the EC Declaration of Conformity that was originally supplied with it.

In the case were the supplier and installer of the assembly are the same then, it is acceptable to certify the assembly under LOLER and issue a report of test and a report of thorough examination, which can be combined on one document, containing the following minimum information.

The report of test and report of thorough examination should contain the following minimal information:

- The date on which the proof load was applied and the thorough examination made.
- Date of the report.
- Report number.
- Name and address of employer for whom the thorough examination was made.
- Address of the premises at which the examination was made.
- Description and identification of the equipment which must include its distinguishing number or mark and grades of steel, its size and length.
- The position and magnitude of the deflections obtained during the traversing of the test at SWL and the proof load.
- The maximum safe working load.
- That the lift shaft beam assembly conforms to BS 2853:2011 were applicable.
- Date of manufacture.
- Reason for the examination, i.e. after first installation and before being used for the first time.
- Particulars of any defect found during the examination and affecting the maximum safe working load and the particulars of the steps taken to remedy such defect.
- A statement stating that the equipment is safe to operate or not
- A statement indicating clearly that it applies to the runway beam only and not to any trolley or lifting appliance that may be fitted.
- Date of next thorough examination.
- Name, signature and qualifications of the person making the report.
- Name and signature of person authenticating the report
- Name and address of the employer of persons making and authenticating this report.

5.2. Lift Shaft Beam assembly for the support of lifting appliances and building structures.
In this case CPR applies, which requires the manufacturer of the structure to produce a declaration of performance. The manufacturer must also ensure that the structure is fabricated in accordance with EN 1090, and they have third party notified body approval of their manufacturing processes.

5.3 Lift Shaft Beam Assembly for the support of fall arrest equipment only.
With regards to fall arrest equipment a EC Declaration of Conformity is required as follows:

- The name and address of the manufacturer
- The name and address of the manufacturers authorised representative, where appropriate.
- Description of the PPE, make, type, serial number, etc.
- Declaration claiming conformity with Regulation (EU) 2016/425 and the harmonised standard EN 795.
- Where applicable certificate numbers of the notified body
- Where applicable, the PPE directive quality control system in place and the monitoring notified body and their identifying number.

6.0 Instructions for use.
Instructions for use and maintenance must be supplied with the lift shaft beam assembly, which will vary depending on the intended use. The intended use must be specified in the instructions as well as

any reasonably foreseeable misuse. The following sections offer guidance to the content for each type.

6.1 Contents of the instructions for Lift Shaft beam assemblies for lifting operations.
Each instruction manual must contain at least the following generic information; however additional information may be required for non-standard lift shaft beams and lifting eyes or additional fitted devices.

1. The business name and full address of the manufacturer
2. Name or serial number given to the beam and lifting eye to which the instructions are for.
3. A general description of the lift shaft beam and lifting eye
4. Drawings, diagrams, descriptions and explanations necessary for use, maintenance and repair of the lift shaft beam and lifting eye. These should include checking correct functioning of parts that have motion.
5. The technical characteristics of the lift shaft beam and lifting eye, and in particular:
   - the safe working load
   - the reactions at the supports or anchors
6. The test loads that must be applied following installation.
7. A description of the intended use.
8. Warnings concerning ways in which the lift shaft beam and lifting eye must not be used that experience has shown that may occur.
9. Assembly, installation and connection instructions, including drawings, diagrams and the means of attachment to the lift shaft and lift shaft beam.

   Note: The lift shaft or any other structure for supporting the lift shaft beam is the responsibility of the end user in terms of adequacy of strength for the imposed in-service and test loads. The Competent Person has a duty of care to ensure that they advise the end user of the imposed loadings and receive confirmation that the lift shaft or other supporting structure is of adequate strength and stability.

10. Instructions for the putting into service and use of the lift shaft beam and lifting eye, if necessary, instructions for training of operators.
11. Information about residual risks that remain despite the inherent safe design measures, safeguarding and complementary protective measures adopted.
12. Instructions on the protective measures to be taken by the user, including, where appropriate, the PPE to be provided.
13. The essential characteristics of devices that may be fitted to the lift shaft beam and lifting eye.
14. A description of the adjustment and maintenance operations that should be carried out by the user and the preventive maintenance measures that should be observed.
15. Instructions designed to enable adjustment and maintenance to be carried out safely, including the protective measures that should be taken during these operations.
16. The specifications of the spare parts to be used, when these affect the health and safety of operators.

6.2 Contents of the instructions for lift shaft beam assemblies for fall arrest applications.
The instructions for fall arrest lift shaft beam assemblies are generally as section 6.1 above. However, this information is complementary to the information required by BS EN 365 Personal protective equipment against falls from a height, general requirements for instructions for use, maintenance, periodic examination, repair, marking and packaging and BS EN 795 Personal fall protection equipment, for the anchor devices.

7.0 Marking.
Lift shaft beam assemblies should be clearly and permanently marked by the manufacturer with information described in sections 7.1 and 7.2, as applicable.

Lifting eyes shall be clearly marked to indicate their individual SWL as their function may be different. Fall arrest anchors shall also be clearly and individually rated in accordance with EN 795. If the beam SWL is less than the combined SWL of the eyes / anchors, then the allowable loading combinations must be indicated on the beam. The intended function, i.e. people carrying, fall arrest, etc. shall also

be marked. It is also recommended that the date of last thorough examination is indicated on the assembly. These markings must be visible from the landing.

7.1 Marking for Lifting operations.
The lift shaft beam assembly must be marked with the following information:

- Business name and address of the manufacturer.
- Identification Number
- Safe working load, including any limiting conditions such as reduced SWL on cantilever. Or for people carrying the maximum number of people and weight restrictions.
- Year of manufacture.
- Maximum hoisting speed for powered hoists or else the words 'Manual Hoist Only'

Additional marking requirements for lift shaft beam assemblies described in 4.1:

- The CE mark, if intended to have a structural function in relation to the building, refer to section 4.1.
- Number of the notified body responsible for verifying the quality process, where applicable, see section 4.1.

7.2 Marking for fall arrest applications.
The fall arrest anchor device must be marked with the following information:

- Means of identification, e.g. manufacturer's name, supplier's name, or trademark;
- The CE mark
- The number of the notified body responsible for verifying the quality process, where applicable.
- Manufacturer's production batch or serial number or other means of traceability;
- Model and type/identification
- Statement that specifies, 'single-user only'
- Pictogram or other method to indicate the necessity for users to read the instructions for use.
- Number and year of the document to which it conforms, i.e. EN 795

8.0 Verification following installation of the lift shaft beam assembly.
Following installation of the lift shaft beam assembly it must be tested to supplement the PUWER inspection (fall arrest) or LOLER thorough examination (lifting operations). This section concentrates on the testing following installation, as it is much more critical in placing the item into service.

Note: Offsite thorough examination of components of the lift shaft beam assembly are inadequate.

An adequate test specification must be drawn up against the design criteria, which should be obtained from the manufacturer. Acceptance criteria, such as maximum permissible deflections, deformations or no free movement for worst case loading conditions, etc., must be included in the specification. A load test should always be planned on the assumption that the item under test might fail. Adequate precautions should be in place to prevent injury to any persons or damage to anything other than the item under test, refer to LEEA 017 Process Control Procedures and the Lifting Equipment Examiners Handbook for guidance.

To meet the design criteria the test must accurately simulate the in-service loading conditions for which the lift shaft beam has been designed. Depending on the design intent, i.e. lifting or fall arrest, the test procedure will vary slightly as the following sections will explain.

8.1 Lift shaft beam assembly support structure specification and verification.
It is the responsibility of the lift shaft beam manufacturer to specify the size and type of fixing to be used to connect the lift shaft beam assembly to the supporting structure, and to provide worst case reaction forces at each fixing under normal operation. It is recommended that the fixings used meet the requirements of a European Technical Approval (ETA). For guidance on load actions reference should be made to EN 1991-3 Actions on structures – part 3 actions induced by cranes and machinery. This information should then be passed on to the building owner, who is responsible for ensuring the adequacy of the supporting structure.

Note: Lift shaft beams are a form of runway beam and LEEA 075 Guidance to the verification of runway beams has guidance and worked examples to their design in accordance with the EN 1993 series. Also BSI have a suite of free guidance to Eurocode design that can be downloaded from the following website; https://shop.bsigroup.com/en/Browse-by-Subject/Eurocodes/?t=r

If the lift shaft or other supporting structure is of adequate strength then, following installation the lift shaft beam assembly should be tested in accordance with 8.2 or 8.3 as applicable.

8.2 Lift shaft beams for lifting operations
Prior to the application of the test load in accordance with the manufacturer's installation instructions, special attention must be paid to:

- the security of nuts and bolts.
- condition and grade of the concrete or other supporting structure.
- condition and adequacy of the lift shaft beam assembly support, i.e. pad stones
- suitability of lateral restraints
- level of the lift shaft beam and lifting eyes in accordance with manufacturers tolerances.
- welds, joints, connections and supports

Once the preliminary inspection has been carried out, a test load equivalent to the safe working load (SWL) shall be applied to the lift shaft beam assembly. The load shall be kept at rest while stable deflection readings are recorded and compared with the manufacturer's limits. Note that for lift shaft beam assemblies, the test load should include the self-weight of the portable lifting appliance specified for use with it. Likewise the self-weight of lifting accessories used should also be taken into account.

Any connection of the lift shaft beam assembly or lifting eye to concrete with little or no measurable deflections shall be white washed prior to application of the SWL. Any cracks present prior to the load shall be recorded and monitored underload. Any new cracking shall be recorded and verified to be within the manufacturer's tolerances.

The loads shall be measured by a load cell calibrated to BS EN ISO 7500-1, such that the sum of the inaccuracies of the load and the load cell do not exceed ±2%. Where containers may be required to house the weights, the self-weight of these containers must be considered.

The procedure outlined above shall then be repeated except that the proof load shall be applied and the stable net deflection shall be recorded. As a general rule, the proof load applied shall be 125% of the safe working load for goods lifting, or 250% of the safe working load for people carrying.

The proof load values for goods lifting and people carrying are specified in general terms and in accordance with industry accepted practices. However, when determining the proof load to be applied consideration shall be made to the following:

1. If the verification by calculation can justify, perhaps based on utilisation which can be monitored and controlled in service for example, that lower working coefficients can be used while maintaining an adequate margin of safety with respect to deterioration over time, then for people carrying the proof load shall be twice the working coefficient than that used to determine the goods lifting safe working load. However, as a minimum, in this case, the proof load applied for both cases shall not be less than 125% of the safe working load.
2. In the absence of such design data then the general proof load values shall be applied. However, please note that many in-service and some new installations are rated at a considerably higher loads than that required for the people carrying applications. For example, a lift shaft beam assembly may be rated at 4 tonnes SWL for goods lifting. Therefore, the proof load would be 5 tonnes to verify such a structure for goods lifting. However, this does not always mean that to certify the beam for people carrying that the proof load would have to be 10 tonnes. This is because that some lift shaft beam designers rate the beams with a goods lifting loads of twice that required for people carrying to make allowance for regulation 5 of LOLER. Regulation 5 of LOLER states that when using equipment that is rated for goods lifting for people carrying applications, the safe working load shall be derated by 50%. Therefore, for people carrying the option is to de-rate the 4 tonnes by 50% to give 2

tonne SWL people carrying. In terms of proof loading in this case either 125% of the 4 tonne SWL or 250% of the derated 2 tonne SWL can be applied.

During the application of the test load and of the proof load the lifting beam assembly and lift shaft or other supporting structure shall be kept under such visual observation as to ensure the ready detection of any obvious defect in the installation.

Note: for steel lift shaft beam assemblies the maximum measured deflection under the safe working load, relative to its supports, shall not exceed 1/500th of the span or 1/250th of a cantilever as a general rule.

To ascertain whether or not the acceptance criteria has been met, the competent person will need to use measuring equipment. This measuring equipment will depend on the acceptance criteria, but it must be calibrated, and may include dial test indicators, strain gauges, etc. Equipment used for measuring deflections must have a resolution such as to allow the measurement to within ±5% of the permitted deflection of the structure under test.

Following the proof force test the lift shaft beam assembly must be thoroughly examined. For further details of this thorough examination refer to section 9.0 of this guidance.

8.3 Lift shaft beam assemblies and anchor devices for fall arrest applications.
Testing of fall arrest lift shaft beam assemblies and anchor devices is not required if they are constructed of components that have been individually tested and are installed in accordance with the manufacturer's instructions. Otherwise, the test procedure in 8.2 should be followed, but with a proof load of 6kN applied in the direction of the fall.

Note: for anchor devices fitted to steel work testing may not be required if the anchor is properly torqued and fitted as per the manufacturers instructions.

8.4 Dual purpose lift shaft beam assemblies.
For multipurpose, i.e. goods lifting, people carrying lifting beams and fall arrest assemblies the test load would be applied to the rated capacity for each purpose. The proof load may only be applied to whichever is the higher. However, if the beam could be used for multiple purposes at the same time, then the combined maximum test loading shall be derived from sections 8.3 and 8.2 where applicable.

9.0 Thorough Examination
Regardless of use a lift shaft beam assembly should be thoroughly examined following installation, periodically and following exceptional circumstances by a competent person.

A competent person must have sufficient knowledge and experience of the applicable legislation, standards and equipment being examined in order to identify defects and assess their importance in terms of the continued safety of the equipment. They need to maintain records of their examinations and report them to duty holder clearly and concisely.

Note: it is a LEEA technical requirement that the competent person has the LEEA Runways and Crane Structures Diploma qualification and associated TEAM card.

The competent person must be sufficiently independent and impartial to allow objective decisions to be made. This means that duty holders are responsible for ensuring that the competent person has the genuine authority and independence to ensure that examinations are properly carried out and that the necessary recommendations arising from them are made without fear or favour.

When conducting the thorough examination, the lift shaft beam assembly must be cleaned of dirt and debris to ensure that all critical components can be examined effectively. If the local lighting is not adequate for examination purposes it should be supplemented by portable lighting rated at 200 lux.

9.1 Thorough examination following installation.
Following installation the lift shaft beam assembly should be tested in accordance with the procedures defined in sections 8.1, 8.2 and 8.3 depending on the intended use, then thoroughly examined as follows.

The examinations should include the following checks:

1. Lift shaft beam.
    - Check for clear identification number.
    - Check for clear marking of SWL.
    - Check beam assembly has the original installation report of test and thorough examination.
    - Check integrity of the installation to its supporting structure
    - Check along the whole length of the beam for wear, damage, distortion, cracking or corrosion.
    - Check all welded connections are free from cracking or corrosion
    - Check any bolted connections are free from corrosion and cracking
    - Check that bolts used in the assembly are of the correct grade and are secured.

2. Lifting eyes
    - Check for clear identification number
    - Check for clear marking of SWL
    - Check for wear, distortion, damage, nicks, gouges, cracks, corrosion
    - Check for correct thread form, i.e. BSW, Metric, or UNC
    - Check thread for wear, distortion, damage, nicks, gouges, cracks, corrosion and concentricity
    - Check for full or partial seizure of rotating components

3. Fall arrest anchors
    - Check for clear identification number
    - Check for clear marking of SWL, or if no marking ensure correct torque (swivel end) in accordance with manufacturers specification or BS 7883 Code of practice for the design and selection of anchor devices.
    - Check for wear, distortion, damage, nicks, gouges, cracks, corrosion
    - Check for correct thread form, i.e. BSW, Metric, or UNC
    - Check thread for wear, distortion, damage, nicks, gouges, cracks, corrosion and concentricity
    - Check for full or partial seizure of rotating components

Note that these lists are not exhaustive, and some configurations may require additional checks. Manufacturer's instructions, section 6.0, and the LEEA Lifting Examiners Handbook should also be referred to.

9.2 Documentation following the installation examination.
If the thorough examination finds the assembly to be installed correctly and free from defects affecting safe operation then the competent person shall issue a report of test and report of thorough examination as described in section 5.1.

Note: the report of test and report of thorough examination can be combined onto one document.

9.3 Periodic thorough examination.
All lift shaft beam assemblies will be subject to statutory periodic examinations, typically this will be every 12 months, however for lifting beam assemblies used for lifting people the requirement would be every 6 months.

However, the utilisation of such equipment is generally very low, in which case a written scheme of examination approach may be justified. Such justification, must be derived from a thorough risk assessment and supported by suitable control measures, refer to LEEA 032 Guidance on Written Schemes of Examination for Lifting equipment. For example the justification may be that the lift shaft beam is effectively mothballed following installation until the next planned maintenance is scheduled. Therefore any deterioration would be due to other factors such as the environmental conditions, which can be controlled with suitable protection, i.e. against corrosion, vibration, etc. Another factor to consider is deterioration through use due to unplanned maintenance. Once all these factors have been identified for the specific lift shaft beam installation it will be possible to estimate when the next examination would be required.

Note: if the period of thorough examination elapses, it is acceptable to do the examination before the next use of the equipment.

In addition to the thorough examination and where reasonably practicable to do so, the lifting beam assembly should be checked at the end of each use for any damage or deterioration, refer to section

9.1. This information should be made available to any subsequent user who would be responsible for taking appropriate action before re-using the equipment.

The examination should be a careful visual examination, supplemented, where relevant, by other tests including non-destructive testing of critical welds and checking the tightness of pre-loaded bolts, in order to arrive at a reliable conclusion as to the safety of the lift shaft beam assembly. If dismantling is necessary for the purpose of the examination, the load test and bolt tightening checks, shall be repeated after assembly. This does not include any dismantling as intended by the manufacturer in terms of normal use and documented in their instructions, i.e. the removal of lifting eye to an adjacent socket.

The periodic examination should follow the same checklist procedure as specified in section 9.1. Note that load testing is at the discretion of the competent person. If the original report of test and report of thorough examination is available and the equipment is free from defect, then an overload test is not required. The competent person may want to verify the deflections as recorded in the initial report, but this can be achieved at safe working load.

9.4 Documentation following Periodic thorough examination.
When a thorough examination only is made of a lift shaft beam assembly already in use and for which a report of thorough examination as referred to in section 9.1 has been granted, the report of such examination must contain the following information.

- The date of the report referred to in section 5.1.
- Date of the report.
- Report number.
- Name and address of employer for whom the thorough examination was made.
- Address of the premises at which the examination was made.
- Description and identification of the equipment which must include its distinguishing number or mark.
- The safe working load.
- Date of manufacture and service life expiry date, if applicable.
- Reason for the examination, i.e. 6 monthly, 12 monthly or in accordance with an examination scheme.
- Particulars of any defect found during the examination and affecting the safe working load and the particulars of the steps taken to remedy such defect.
- A statement stating that the equipment is safe to operate or not
- A statement indicating clearly that it applies to the lift shaft beam assembly only and not to any trolley or lifting appliance that may be fitted.
- Date of next thorough examination.
- Name, signature and qualifications of the person making the report.
- Name and signature of person authenticating the report
- Name and address of the employer of persons making and authenticating this report.

LEEA has a suit of template reports that are compliant with the above and are available to members of LEEA. An example of one such report can be found in appendix 1 of the guidance.

9.5 Verification following exceptional circumstances.
Lifting equipment will require a thorough examination after exceptional circumstances which could affect the safe operation of the equipment. An exceptional circumstance would include, for example, a major modification, repair, over load, known or suspected damage or a change in the nature of use.

Whenever a lift shaft beam assembly requires repair it is advisable that the cause of the damage is investigated. It may be that the equipment is no longer adequate for the task.

9.5.1 Repair and verification due to in-service wear and tear.
If a lift shaft beam assembly is to be repaired it is advisable that the original design specification is consulted. Where this is not feasible then the repairer will have to take responsibility to ensure that the correct materials and components are used. To that end the repairer must have adequate information about the application the lifting beam assembly is used for.

A record of the repairs and details of the components used should be recorded and retained with the maintenance log of the equipment.

Following the repair the equipment should be thoroughly examined by a competent person. If the repair is such that the load bearing capability may be affected, then the thorough examination may need to include NDT and / or a load test.

9.5.2 Modification and verification.
There are a variety of reasons why a lift shaft beam assembly may be modified during its life. It may be that the load it lifts has been altered requiring different reach distances or an increase in weight for example.

If the lift shaft beam assembly is modified in a manner that is not supported by the original manufacturer or if the manufacturer is unknown or uncontactable, then the modifier is fully responsible for the modified assembly.

Whatever the reason it is important that the original design specification, test data, and technical file is referred to where possible. In the absence of this information then the person responsible for the modification will have to make assumptions about certain aspects of the design in order to minimise the risks associated with the modification. For example, assume the lowest grade of steel for calculation purposes.

The modification should then be treated as making a new lift shaft assembly from second hand materials and the modifier must ensure that all applicable essential health and safety requirements are met.

10.0 In Service Use
The owner of the lift shaft assembly, and the employer of persons using the equipment, are responsible for ensuring that the equipment is properly maintained and that operatives have received sufficient training in terms of the safe use of the equipment. It is therefore imperative that the manufacturer's instructions are consulted and followed.

The following sections can be used as a means of ensuring that the equipment is properly maintained.

10.1 Pre-use Inspections.
When reasonably practicable pre-use checks should be carried out before each new use or at the start of each shift during which the lift shaft beam assembly is to be used. These are to test the functionality of the lift shaft assembly and visually check for any obvious defects. It is essential that these are carried out from a position of safety.

In the event that equipment fails the pre-use check, then there should be a procedure to quarantine the equipment and effectively prevent further use until the problem has been resolved.

10.2 In service inspection
Due to the frequency of use regular in-service inspections may not be necessary. The inspection should be sufficient to identify any defects which might not be detected by the pre-use checks. In-service inspections should be carried out at intervals which ensure that any deterioration is identified before there is a risk of failure of the lift shaft beam assembly or injury to persons.

It might be convenient to schedule the inspections concurrently with planned preventive maintenance (see 9.4).

The period between inspections should be decided on the basis of the frequency of use and the environmental conditions. The period should be kept under review and adjusted according to the results of the inspections.

In the event that equipment fails the inspection, then there should be a procedure to quarantine and effectively prevent further use until the problem has been resolved.

10.3 Records of Pre-use Checks and In Service Inspections
Written records of all pre-use checks and in-service inspections should be kept and the following sections provide recommendations for each.

10.3.1 Pre-use Checks
The record of a pre-use check should include at least the following information:

- Identity of the lift shaft beam assembly
- Date of the check
- Result of the check, i.e. pass or fail.
- Name and signature of the person carrying out the check.

It is recommended that this information is completed on a single line of a pro-forma record card kept in a waterproof wallet attached to the lift shaft beam assembly.

10.3.2 In Service Inspections.
The record of an in-service inspection should include at least the following information:

- Date of the inspection
- Name of person carrying out the inspection
- Description and unique identification number of the equipment inspected
- Nature and extent of the inspection
- Results of the inspection, including details of the condition of critical components which need to be monitored, for example wire rope showing signs of wear.

The record should be related to the lift shaft beam assembly's historical records and made available to the competent person responsible for the thorough examination.

10.4 Planned preventative Maintenance
Planned preventative maintenance should be carried out in accordance with the manufacturer's instructions. It might be convenient to schedule in service inspections concurrently with the planned preventative maintenance, refer to 10.2.

Appendix 1 : Template Report of Examination.

Document Reference LEEA-030.1f3

LEEA
Full Member

REPORT OF THOROUGH EXAMINATION UNDER SCHEDULE 1 OF LOLER

Name & Address of employer for Whom the examination was made	Address of the premises where the examination was made		
Company Name	Site Name	Date of report	
		Report Ref No	
		Customer Ref	
		Colour code (if Req'd)	

ID Ref	Description of equipment including date of manufacture if known	Date of last thorough examination	SWL	Reason for examination (see below)	Safe to use Yes No	Identification of any part found to have a defect which is or could become a danger to persons including particulars of any repair, renewal alteration to remedy the defect	HSE Notified	Time by which defect could become a danger	Latest date of next thorough examination	Particulars of any test including deflection etc

Reason for Examination	A – New Installation or new location	B – Within 6 Months	C – Within 12 months	D – written Scheme	E – Exceptional circumstances

Name & qualifications of person making the report Date of thorough examination	Name of the person authenticating this report Signature	Where there is in the opinion of the competent person a defect involving an existing or imminent risk of serious personal injury then a copy of the report as soon as practicable to should be sent to the HSE.