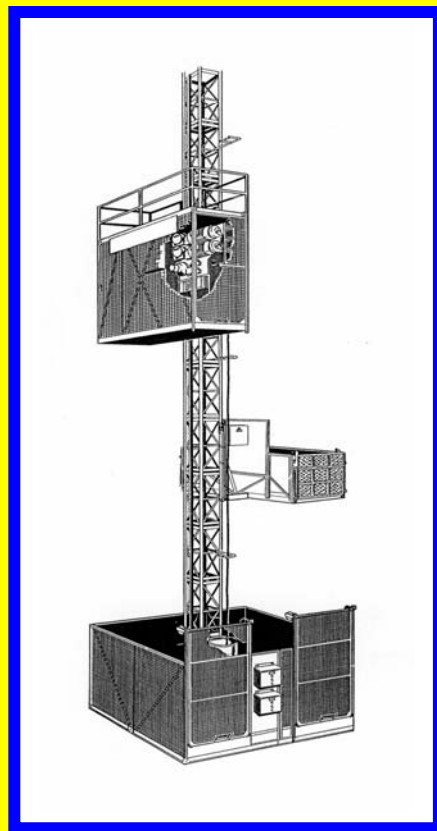




Construction Hoists



**Inspection, Thorough Examination and
Maintenance**

CPA Best Practice Guide

CHIG 0301(Rev1)

Construction Hoists

Inspection, Thorough Examination and Maintenance

CPA Best Practice Guide



CHIG 0301(Rev 1)

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NOTE:

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ACKNOWLEDGEMENTS:

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Foreword

This Best Practice Guide on the Inspection, Thorough Examination and Maintenance of Construction Hoists confirms the Construction Plant-hire Association's continued commitment to improving health and safety. It has been produced as part of the CPA's action plan within the Health and Safety Executive's Revitalisation of Health and Safety Initiative.

The work has been done by a Working Group of specialists within the Construction Hoist Interest Group (CHIG) of the CPA with substantial input from the Health and Safety Executive. This partnership is endorsed by the HSE's "Working in Partnership" logo.

The Best Practice Guide is aimed at providing guidance to hoist hire companies to enable them to meet the requirements for inspection, thorough examination and maintenance, contained within the Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 and the Provision and Use of Work Equipment Regulations (PUWER) 1998.

This guidance also gives the users of hoists best practice advice for daily pre-use checks and weekly inspections.

It includes report forms, check lists and a summary table for thorough examination to assist all personnel involved with these activities.

On behalf of the members, the Association wishes to express its thanks to the CHIG Thorough Examination of Hoists Working Group (see Appendix 4) for their hard work in producing this excellent publication.



W H Law
President
Construction Plant-hire Association

1. Introduction

The Lifting Operations Lifting Equipment Regulations (LOLER) and the Provision and Use of Work Equipment Regulations (PUWER 98) came into force in 1998. They have brought in changes to the requirements for all lifting equipment regardless of where it is used. Details of the regulations, an HSE Approved Code of Practice (ACoP) plus HSE guidance can be found in two HSE booklets "*Safe use of lifting equipment*" and "*Safe use of work equipment*" (see Section 11 - Bibliography.)

These regulations are goal setting in nature and replace most of the prescriptive law relating to the use of lifting equipment. LOLER applies to all sectors of industry.

The ultimate responsibility for the thorough examination and inspection of the hoist installation rests with the principal contractor and/or user (LOLER). Other legislation and guidance deals with hoist installations (see Section 11 - Bibliography.)

This best practice guide gives specific guidance on the inspection and thorough examination of construction hoists (builder's hoists). It should be used by the owners and users of hoists in conjunction with the above two HSE safe use booklets on PUWER 98 and LOLER and BS 7212 "*Code of practice for safe use of construction hoists*".

2. Scope

This guidance is intended to give practical guidance for the pre-use checks, in-service inspections, thorough examination, testing, maintenance and documentation of all construction hoists including goods only, passenger/goods, inclined hoists and transport platforms.

For the purposes of this guidance a "hoist" means a lifting machine where the movement of the cage/platform is restricted by a guide or guides. Such hoists are used as temporary installations during construction work.

Further guidance on transport platforms is given in the CPA Best Practice Guide on the *"Installation, Use, Maintenance, Inspection, Examination and Testing of Transport Platforms"* (CHIG 0201).

It should be noted that there are a number of lists within this guidance that are intended as practical examples or suggestions. It is impossible to include everything when considering such lists and none should be considered as being exhaustive.

3. Definitions

3.1. Competent person

A person who has such appropriate practical and theoretical knowledge and experience of the construction hoist to be thoroughly examined as will enable them to detect defects or weaknesses and to assess their importance in relation to the safety and continued use of the hoist.

3.2 Appointed person (supplier)

The person appointed by the hoist supplier who is responsible for planning the installation, method statements for the erection, safe operation, inspection, maintenance, thorough examination and dismantling of the hoist.

3.3 Appointed person (user)

The person appointed by the management/user organisation who is responsible for devising safe systems of work and other aspects of use of the hoist.

3.4 Hoist installation

For the purposes of this document, hoist installation means all parts of the hoist including the drive mechanisms, safety mechanisms, mast and tie arrangements, access to the landings, and hoistway protection at the landings including landing gates, landing interface and base enclosure.

3.5 Goods-only hoist

A vertical hoist where persons are not allowed to travel on the platform, but which permits, if necessary, during erection, dismantling, maintenance and inspection, the access and travel by persons who are competent and authorized. Such a hoist may allow access to the platform for the purposes of loading and unloading when stationary at a landing level.

3.6 Inclined hoist

A goods-only hoist where the platform is designed to travel at any angle between the vertical and the maximum inclination as specified by the manufacturer.

3.7 Passenger/goods hoist

A vertical hoists where persons are allowed to travel within a fully enclosed cage.

3.8 Transport platform

Transport platforms are different from passenger/goods hoists in that:

- they are designed for the transportation of materials and/or persons, controlled only by an appointed operator travelling on the platform;
- the platform has a roof but is not fully enclosed;
- the platform is positioned at least 0.5 metres from the supporting structure;
- the number of persons travelling on the platform, including the appointed operator, is restricted.
- the total weight of persons is typically 50% of the rated load of the platform;
- motion is initiated by 'hold to run' controls;
- speed is limited to 0.2 metres per second (12 metres per minute).

3.9 Landing interface

All items associated with a hoist installation which are not always supplied with the hoist. Such items include the threshold between the hoist platform and the landing, side protection at landings and hoistway protection.

3.10 Overspeed safety device

A mechanical device, usually fitted to a rack and pinion hoist, that is independent of the means of suspension or drive, which arrests and supports the cage or platform together with its rated load in the event of overspeed in a downward direction.

It comprises an overspeed governor which is set by the manufacturer and operates at some predetermined speed in excess of the maximum rated speed and a safety gear which, when “actuated” by the governor, clamps the hoist platform or cage to the mast or guides.

3.11 Instantaneous safety mechanism

A mechanism usually fitted to wire rope hoists, which arrests and supports the cage or platform together with its rated load in the event of a failure of the suspension rope(s). This mechanism generally operates instantaneously.

3.12 Testing

Testing may comprise all or some of the following:

- a functional test;
- a load control test;
- a load test;
- a drop test;
- electrical testing;
- non-destructive testing (NDT).

Any testing must be appropriate for the purpose (see Section 6.6).

4. Selection of Personnel

Selection and authorisation of persons should be undertaken with consideration being given to their competence to complete the task. They should be given the appropriate information and, where necessary, instruction and training so that they can carry out these tasks properly avoiding danger to themselves and others.

4.1 Person carrying out daily pre-use checks

A person who has been authorised to inspect the hoist shall carry out pre-use or daily checks (see sections 5.1 and 5.2). Hoist operators may perform this task provided that they meet the above criteria.

4.2 Person carrying out weekly inspections

A person who has been authorised to inspect the hoist shall carry out weekly inspections (see sections 5.1 and 5.3). Hoist operators may perform this task but will require a higher level of competence over and above that required for pre-use checks.

4.3 Maintenance personnel

Maintenance inspections and activities should only be carried out by those who possess sound knowledge of the particular hoist and who are assessed as competent to carry out the work. Normally, service personnel employed by the hoist supplier carry out maintenance.

4.4 Person carrying out thorough examinations

A competent person shall carry out thorough examinations. The person must have the appropriate practical and theoretical knowledge and experience of the hoist as will enable him to detect defects or weaknesses and to assess their importance in relation to the safety and continued use of the hoist.

It is essential that the competent person is sufficiently independent and impartial to allow objective decisions to be made. This does not mean that competent persons must necessarily be employed from an external organisation. If employers and others within their own companies have the necessary competence, then they can use it. However, if they do, they must ensure that the competent person has the genuine authority and independence to properly carry out the thorough examinations and that recommendations arising from them are made without fear or favour.

5. Periodic Checks (Pre-Use and Weekly Inspections)

5.1 General

The appointed person (user) should ensure that the checks are carried out before work starts and that adequate time is made available. The recommendations in this guidance are based on a 39-hour working week. More frequent inspection should be considered if greater hours are worked, taking into account the nature of the work, the loading conditions, operational cycles and any operating conditions, environmental or weather conditions to which the hoist may be exposed.

Hoists should be taken out of service whilst checks, inspections, maintenance, thorough examination and testing is being carried out. A safe system of work should be formulated, agreed and subsequently followed by all personnel engaged in these operations.

5.2 Daily pre-use checks

At the beginning of each shift or working day, routine checks as appropriate for the type of hoist should be carried out prior to using the hoist. (See list of suggested checks in Appendix 1 and a typical form for recording results in Appendix 3.) This usually comprises observations and functional checks and does not involve dismantling. These checks are intended to reveal only the obvious defects.

The person carrying out the daily checks should report any defects to the appointed person (user).

5.3 Weekly inspections

In addition to the pre-use checks, an inspection appropriate to the type of hoist should be carried out once a week when the hoist is in use. (See list of typical items to inspect in Appendix 2 and a typical form for recording results in Appendix 3).

The person carrying out the weekly inspection should report any defects to the appointed person (user).

5.4 During erection, alteration or prior to dismantling

During the erection, dismantling and alteration processes, it may be necessary to use lifting equipment and accessories, together with the hoist itself. All this lifting equipment is subject to LOLER and therefore the relevant personnel should carry out any daily and weekly checks that are required.

The erection personnel would be responsible for the pre-use checks on the hoist and any hoist mounted lifting equipment prior to commencement of these activities. If other lifting equipment such as chain slings, scaffold jib crane, mobile crane, tower crane etc. is provided, then it is subject to pre-use checks and inspection by others as previously agreed during the planning process between the appointed person (user) and the appointed person (supplier).

Prior to dismantling, check that all parts of the hoist installation are safe and in good working order. This must include a check to ensure that all building ties are present and secure.

5.5 Rectification of a reported defect

The appointed person (user) should ensure that defects that are detected during the daily checks and weekly inspections are repaired. (The report forms in Appendix 3 can be used to assist in this respect). It is recommended that the repaired defects be recorded on an appropriate service sheet.

5.6 Hoist not in regular use

In cases where a hoist is not in regular use, it may be necessary for a competent person to carry out a special programme of checks before it is used. The extent and thoroughness of this programme will depend not only on the length of the period that the hoist was out of use but also on the location of the hoist during this period.

The appraisal should include at least the following:

- (a) Any checks that the manufacturer may recommend.
- (b) An examination of all hoist ropes for signs of corrosion and damage and to ensure that there is sufficient lubrication. The international standard *ISO 4309:1990 "Cranes - Wire ropes - Code of practice for examination and discard"* gives useful advice.
- (c) An examination of all control linkage for evidence of seizure or partial seizure and to ensure that there is correct lubrication.
- (d) A test of every hoist motion without a load, and a repeat of the test with a load on the hoist.
- (e) A check on the correct functioning of all the hoist safety devices.
- (f) Consideration should be given to the possible deterioration of hoists that have been exposed to adverse weather, atmospheric pollution and other contaminants.
- (g) A check that the hoist installation is complete prior to any functional test.

6. Thorough Examination

Regulation 9 of LOLER deals with thorough examination and inspection. In LOLER the term "thorough examination" can also include testing.

Thorough examination has three purposes:

- (a) to ensure that the hoist has been installed correctly and is safe to operate;
- (b) to detect deterioration of a hoist after it has been installed by the careful scrutiny of its condition and to assess its significance in relation to the continuing safe operation of the hoist;
- (c) to ensure that any alteration or major repair to the hoist has been carried out correctly and that the hoist is safe to operate.

LOLER requires that construction hoists be thoroughly examined:

- (a) following installation at a new site and before it is handed over to the customer and put into service;
- (b) following the re-configuring on site and before it is handed over to the customer and put back into service;
- (c) periodically to detect deterioration that occurs during use;
- (d) following exceptional circumstances.

6.1 Thorough examination following hoist installation

LOLER requires that every time the hoist is installed at a new site or in a new location and safety depends on the installation conditions, it receives a thorough examination after installation and before being put into use for the first time. This is to ensure that it has adequate strength and stability, has been installed correctly and is safe to operate. This examination is mandatory irrespective of any previous periodic thorough examinations (see 6.3.1).

Whilst the competent person should decide what, if any, testing is required as part of a thorough examination, the scope and nature of such an examination would normally include:

- examination in accordance with 6.6.1 to 6.6.8
- functional test in accordance with 6.6.9
- load control test in accordance with 6.6.10
- load test in accordance with 6.6.11
- drop test in accordance with 6.6.12
- electrical examination in accordance with 6.6.13

6.2 Thorough examination following alteration on site

If the configuration of the hoist is changed whilst it is still at its new location and safety may be affected, the hoist will need to be thoroughly examined further before being put back into use. This examination is mandatory irrespective of any previous periodic thorough examinations (see 6.3.1). The scope and nature is at the discretion of the competent person.

This thorough examination should concentrate on the integrity of those parts of the installation that have changed. For certain re-configurations, Table 1 recommends

that a load test is always carried out in accordance with 6.6.11. The competent person is advised to look at the service history and previous thorough examination report to influence his judgement on the extent of the thorough examination.

If the scope of this examination does not cover all the elements listed in 6.1, then it is recommended that the existing date of the next periodic thorough examination remains unchanged.

6.3 Periodic thorough examination

The scope and nature of a periodic thorough examination is at the discretion of the competent person. It is his responsibility to detect any changes in site conditions that may affect safety and any defects or deterioration which are, or could become, a danger to persons. The thorough examination will normally include:

- examination in accordance with 6.6.1 to 6.6.8
- functional test in accordance with 6.6.9
- load control test in accordance with 6.6.10
- load test in accordance with 6.6.11
- drop test in accordance with 6.6.12
- electrical examination in accordance with 6.6.13

LOLER provides the opportunity for the using employer to either have a “specified period” or an “examination scheme” approach to examination. Whichever approach is adopted, there is a requirement to take into account the pre-use checks (regulation 8) and weekly inspections (regulation 9(3)(b)).

6.3.1 Specified period

While LOLER specifies maximum periods between thorough examinations, the competent person may impose shorter intervals due to such factors as:

- high levels of usage;
- harsh environmental conditions;
- severe deterioration observed during maintenance;
- recorded re-occurring problems.

6.3.1.1. Six monthly thorough examination

Hoists used to lift persons must undergo a thorough examination by a competent person at least once every six months unless the competent person has imposed a shorter interval.

6.3.1.2. Twelve monthly thorough examinations

Goods only hoists shall be subject to a thorough examination by a competent person at least once in every twelve months. The competent person must specify when the next thorough examination is to be carried out, which may be less than but not more than twelve months.

6.3.2 Examination schemes

It is most unlikely that an examination scheme approach will be suitable for construction hoists due to their modular construction. Not every component (e.g. mast sections, etc) will be used on each installation and the stresses imposed on each component will vary from installation to installation depending on where it is positioned.

6.4 Thorough examination following exceptional circumstances

The competent person should exercise his judgement to tailor the scope and nature of the thorough examination to suit the exceptional circumstances encountered (refer to table 1). The competent person is advised to look at the service history and the previous thorough examination.

These exceptional circumstances include:

- modification and/or significant repairs including the replacement of load bearing parts;
- an overload during use;
- structural damage;
- an accident or dangerous occurrence.

6.5 Summary table for thorough examination

The following table sets out the various activities which may require thorough examination with respect to the installation, use, alteration and dismantling of the hoist.



TABLE 1

CONSTRUCTION HOISTS - THOROUGH EXAMINATION & TESTING

Activity		Thorough Examination	Functional Test (6.6.9)	Load Control Test (6.6.10)	Load Test (6.6.11)	Drop Test (6.6.12)	NDT (6.6.14)	Documentation
Initial and complete hoist installation (see 3.4)		✓ (6.1)	✓	✓	125 % ¹	100% ²	Discretionary	Schedule 1 Report
Periodic Thorough Examination		✓ (6.3)	✓	✓	100 % ¹	100% ²	Discretionary	Schedule 1 Report
Thoro' Exam. after exceptional circumstances, e.g. dangerous occurrences, repair of load bearing parts & major repairs		✓ (6.4)	Discretionary	Discretionary	Discretionary	Discretionary	Discretionary	Schedule 1 Report
ALTERATIONS	Increase mast height	✓ (6.2)	Discretionary	✗	125 % ¹	✗	Discretionary	Schedule 1 Report ⁶
	Reduce mast height No ties removed	✓ (6.2)	Discretionary	✗	✗	✗	Discretionary	Schedule 1 Report ⁶
	Reduce mast height Ties removed	✓ (6.2)	Discretionary	✗	125 % ¹	✗	Discretionary	Schedule 1 Report ⁶
	Adding gate(s)	✓ (6.2)	Discretionary	✗	✗	✗	✗	Schedule 1 Report ⁶
	Removing gate(s)	✓ (6.2)	Discretionary	✗	✗	✗	✗	Schedule 1 Report ⁶
	Adding ties	✓ (6.2)	Discretionary	✗	125 % ¹	✗	Discretionary	Schedule 1 Report ⁶
	Removing ties	✓ (6.2)	Discretionary	✗	125 % ¹	✗	Discretionary	Schedule 1 Report ⁶
Partial Dismantling		See notes in Section 5.4. Refer to relevant activities listed above.						
Dismantling		See notes in Section 5.4	✗	✗	✓ ³	✓ ⁴	✗	✗ ⁵

See legend and notes over page.

LEGEND

✓	Carry out this activity.
X	This activity is not required.
Discretionary	This activity is at the discretion of the competent person (see sections 6.2 and 6.4).
1	Hoists fitted with overload detection devices should be proof load tested in accordance with the manufacturer's instructions.
2	The load may be reduced as per the manufacturer's instructions.
3	The hoist motor brake is to be tested to ensure that it can accommodate 125% of the maximum load expected during dismantling.
4	A drop test should be carried out prior to dismantling. This may be with or without a load.
5	Documentation is not normally required, but if defective components are discovered these should be noted for subsequent action.
6	If the configuration of the hoist is changed which affects overall safety, a thorough examination is required before being returned to service, a Schedule 1 report would need to be issued (see 6.2).

Thorough Examination - see section 6.6

Thorough examination of the complete hoist installation, including the mast(s) and ties, the platform, base and landing gates. The scope and nature of a thorough examination will normally include visual inspection, functional testing, a load test, a test of the load control system where fitted, a drop test to confirm the correct operation of the safety device and non-destructive examination where appropriate.

Alterations and exceptional circumstances - see sections 6.2 and 6.4

Following hoist alteration or exceptional circumstances, a thorough examination of those parts of the hoist installation whose integrity needs to be confirmed before the hoist can be put into service. The competent person is advised to refer to the service history and previous reports of thorough examination.

Functional Test – see section 6.6.9

The competent person must confirm that the hoist installation operates correctly with regard to controls, safety circuits and associated interfaces. For alterations only the relevant components need testing.

Load Control Test – see section 6.6.10

On a hoist fitted with load control devices, a test to confirm that it operates within the specification described in the manufacturer's manuals.

Load Test - see section 6.6.11

A test to confirm the structural integrity of the mast(s), ties and their fixing, and cage/platform. Normally the final test load after the erection of the hoist, alteration and exceptional circumstances is 125% of the rated load. At periodic thorough examinations the test load is normally a minimum of 100% of the rated load.

Drop Test – see section 6.6.12

A test to confirm that the overspeed safety device works within its specification.

Non-destructive Test – see section 6.6.13

Specialised tests, such as magnetic particle inspection, dye penetrant etc, to establish the extent of any defects in the structure.

Documentation

See section 7.

6.6 Scope and nature of the thorough examination

This section lists the components and elements of a hoist that need to be thoroughly examined and gives details on how the examination should be carried out.

6.6.1 Structural examination

Examine the load bearing items such as masts, mast bolts, ties, fixing anchors, the load carrying device (cage/platform) and the base support. Ensure that no cracking or permanent deformation has occurred and that no connections have loosened or become damaged during test or in previous operation in either the hoist itself or its connections to any adjacent structures.

A visual examination should be supplemented by non-destructive testing whenever the competent person considers this to be necessary.

6.6.2 Mechanical drives

Examine the racks and pinions, drive drums, pulleys, gear boxes, transmissions, motors, brakes, guide rollers, counter rollers, drive shafts and the emergency lowering system to detect undue wear or malfunction.

6.6.3 Safety components

Examine the overspeed safety device, load control device, manual lowering device, alarm systems, intercoms, ultimate end-of-travel limits or stops, retaining hooks, buffers, handrails, escape ladders, guards etc.

6.6.4 Wire ropes and associated components

Examine the condition of wire ropes, pulleys/sheaves, wire rope terminations, slack rope device, drum spooling device, counterweights and their guides, etc.

A detailed examination should be made of wire ropes, if fitted, with special regard to broken wires, surface wear, excessive stretching, unequal rope tensions, variations in diameter, kinks, localized crushing, "bird caging" due to mis-spooling and surface rust and corrosion.

It is not possible to stipulate the life of suspension ropes because of the many variables, but special care should be exercised during examination if a wire rope is more than two years old. A useful reference for wire rope discard criteria is the international standard *ISO 4309:1990 "Cranes - Wire ropes - Code of practice for examination and discard"*.

6.6.5 Cage and platform gates, ramps and flaps

Examine for the correct function and mechanical integrity of the gates, ramps and flaps, side protection etc., paying special attention to hinges, electrical and mechanical interlocks, actuating devices, latches, restraining mechanisms, guides and rollers etc.

6.6.6 Landing gates and base enclosure gates and their interlocks

Examine for the correct function and mechanical integrity of the gates, paying special attention to the security of fixings, condition of the in-fill mesh, hinges, electrical and mechanical interlocks, latches, restraining devices, guides and rollers etc.

6.6.7 Hoistway protection

Hoistway protection is designed to reduce the risks from persons or objects coming into contact with the moving platform or falling into the hoistway. The hoist user shall ensure that hoistway protection is provided over the full height of travel of the platform and that the threshold between the platform and the landing level is in-filled to prevent persons or materials from falling through.

Examine the base enclosure, landing gates, in-fills and any fixed guards at landings provided by the hoist installer for mechanical integrity and security of fixings. Some parts of the protection are often provided by a third party, for example, a scaffolding contractor. The hoist examiner should record any obvious defects or omissions of this protection on the report of thorough examination. If the hoistway protection is not complete the hoist cannot safely be put into service for its intended use.

Further guidance on the management arrangements for the examination of the hoistway protection is contained in Section 8.

6.6.8 Signs

Ensure that signs for rated load and maximum number of persons, operating instructions, safety information and warnings are in place and legible. Also ensure that the legends on the operating controls are legible.

6.6.9 Functional test

The competent person should undertake the following tests to confirm correct operation. Where possible, undertake the test with the cage/platform near ground level:

- residual current device (RCD) and the machine isolator switch;
- electrical control/safety circuits of the cage/platform - check the operation of emergency stop controls, alarms, operating controls and erection controls;
- any other controls such as landing call stations;
- all hoist trailing cable restraint and storage systems;
- terminal stopping switches and their activating devices;
- ultimate stopping switches/devices and their activating devices;
- landing and cage gates - mechanical, electrical and activating devices;
- the brakes for satisfactory operation.

6.6.10 Load control test

On hoists fitted with load control devices, these should be tested according to the manufacturer's instructions.

6.6.11 Load test

The load test is a test to confirm the structural integrity of the mast section, ties and their fixings, and cage/platform. It also confirms the effectiveness of the braking systems. Before carrying out the load test, carry out a visual inspection and functional tests.

After the erection of the hoist, alteration on site and exceptional circumstances, the load test is initially carried out at 100% of the rated load and then at overload as per manufacturer's instructions which is typically at 25% in excess of the rated load.

At in-service periodic thorough examinations, the test load is normally a minimum of 100% of the rated load.

During the test, the hoist should be tested over the full range of normal operated travel.

Following the load test, the hoist installation should be inspected for signs of damage or deterioration caused by the test.

6.6.12 Drop test

Hoists make use of an overspeed safety device or an instantaneous safety mechanism that may require drop testing.

The method of drop testing and the acceptance criteria should be in accordance with the manufacturer's safety instructions. It is advisable to devise a written method statement based on risk assessment.

Any suspected fault in an overspeed safety device should be referred to the manufacturer for proper checks to be carried out. Under no circumstances should the governor tripping speed be altered. If necessary, other parts of the hoist might have to be dismantled by a skilled person to the degree required by the competent person for his inspection.

Under the Construction (Lifting Operations) Regulations 1961, now revoked, it was a legal requirement to drop test rack and pinion hoists every three months, often with a thorough examination of the complete installation. With the introduction of LOLER 1998, when the competent person makes his decision on continuing with this practice, it is recommended that the following is taken account of:

- the manufacturer's recommendations;
- the hoist's duties;
- the working environment.

Options that may be considered would include three-monthly drop testing of all hoists with no load and six monthly drop testing of goods hoists with rated load.

6.6.13 Electrical installation

6.6.13.1 Pre-delivery examination

The integrity of the hoist electrical system should be confirmed by inspection and test. It is often more convenient to carry out these tests at the supplier's workshops, immediately prior to delivery, rather than on site. These tests should be carried out as a part of preventative maintenance and as a part of the thorough examination where evidence is not available to show that this has been done.

Tests should be performed to determine the functional integrity of those parts of the control circuit that cannot be examined visually, namely:

- continuity test of the protective bonding circuit;
- insulation resistance test (at a minimum of 2 x rated operating voltage) to assess the integrity of electrical insulation;
- functional test of each safety related control system from sensor through to final actuator, to determine that the whole system is working satisfactorily;
- check that the fuses and miniature circuit breakers installed are rated in accordance with the manufacturer's data;
- visual examination of the condition of solenoids and contactors etc., if the competent person has concerns about the integrity of the electrical control circuit.

6.6.13.2 Examination following installation

Contractual arrangements should be put in place to ensure that once the hoist has been installed and connected to the site supply, the insulation resistance and the continuity of the protective bonding circuit are tested. Guidance on the requirements for the site supply is given in the HSE booklet "*Electrical Safety on Construction Sites*", HS (G) 141.

The thorough examination should include the visual and functional checks described in 6.6.9.

To ensure that critical elements are free from contamination by dust, moisture or damage that may inhibit safe operation of the hoist, examination of the external condition of the following parts should be performed, supplemented by appropriate tests:

- machine control panels - an external visual examination to determine whether dust, moisture etc. can enter the panel causing defects such as short-circuit of devices, prevent operation of control gear etc;
- cabling, wiring, conduits, junction boxes, glands, etc. - an external visual examination to determine the integrity of insulation, seals, etc;
- motor and drive assemblies - an examination for undue noise, vibration or excess heat;

- lamps, indicators and displays - a visual inspection to ensure that lamps etc are working correctly and that they actually provide their designated information.

Following installation, the condition of the cabling to newly installed parts of the electrical circuit such as the gate interlocks, landing call stations, and top travel limits should be visually inspected.

Upon completion of the thorough examination of the electrical system, the competent person should ensure that all covers and panels are properly fitted and any shorting links used during tests have been removed.

6.6.13.3 Periodic examination

Carry out the inspections and tests described in 6.6.13.2.

6.6.14 Non-destructive testing

During thorough examination of a hoist's structure and mechanism, it may be appropriate to use certain non-destructive testing (NDT) techniques to assess the integrity of components. These techniques can assist in the detection of cracks or wear that might grow in service and ultimately lead to failure.

NDT techniques should only be carried out by adequately trained and experienced persons who should be briefed on the purpose and extent of the NDT examination required, for example, the typical locations and type of defect anticipated.

Guidance on the qualifications and certification of persons undertaking NDT is given in *"BS EN 473:2000: Non-destructive testing. Qualification and certification of NDT personnel. General principles"*.

The three most common types of NDT used for in-service inspections of hoists are:

- ultrasonic examination
- dye penetrant
- magnetic particle examination.

For further information on these types of NDT, HSE has published:

"Best practice for the procurement and conduct of non-destructive testing"

- *Part 1 – Manual ultrasonic inspection*

- *Part 2 – Magnetic particle and dye penetrant inspection*

(These can be found on the HSE internet site www.hse.gov.uk/dst/ndt1.pdf and www.hse.gov.uk/dst/ndt2.pdf)

7. Reporting & Rectification of Defects Found during Thorough Examination

The competent person who carries out the thorough examination has duties under Regulation 10 of LOLER to produce a written report of the state of the equipment at the time of the thorough examination for the user and the hoist supplier (if hired). The report must contain the particulars listed in Schedule 1 of LOLER.

An example report form is given in Appendix 3 together with an example of a checklist to be used during the examination. It is strongly advised that any repairs carried out relating to the thorough examination are recorded on the service sheet and kept with the report of thorough examination.

Thorough examinations under LOLER are undertaken to:

- ensure that equipment has been installed correctly and is safe to operate;
- ensure, when in service, the hoist remains in good working order and that any deterioration likely to result in dangerous situations can be detected and remedied.

The Health and Safety at Work etc Act 1974, Section 3 imposes a duty on the competent person to inform the user of any obvious hazards found.

7.1 Defects posing imminent risk of serious personal injury

If a defect poses an imminent risk of serious personal injury, requiring the hoist to be taken out of service immediately, then the competent person must notify HSE, the user and the hoist supplier. This applies even if the defect has been immediately remedied otherwise it disguises a potentially dangerous situation. The user, having received such a report, must ensure that the hoist is not used until the defect has been rectified. A record of the remedial work should be attached to the report of thorough examination.

Examples of failures that could typically pose such risks include:

- faulty interlocks such as cage or landing gates;
- failure of a safety device;
- incomplete enclosures or gates;
- exposed electrical conductors;
- significant wear or misalignment of components;
- excessive corrosion or damage to structural items;
- missing hoistway protection or landing interface.

7.2 Defects that need rectification within a period of time

When a defect needs to be rectified within a specified period of time, the user and the supplier must be informed and the information recorded on the report of thorough examination. This applies even if the defect was repaired during the thorough examination.

7.3 Other observations

The report of thorough examination may also be used to record any other conditions that are observed that could lead to the equipment deteriorating over time. This is to assist the competent person who carries out the next examination.

7.4 Responsibility for rectification of defects

Where the competent person identifies defects affecting the continued safe use of the hoist, the responsibility for the rectification of these defects rests with the employer of the person controlling the use of the hoist. (See HSE booklet *"Safe use of lifting equipment LOLER, ACoP and Guidance"*, paragraphs 38 - 43).

In all cases, the appointed person responsible for lifting operations will need to assure themselves that, before a hoist is used, all the reported defects have been rectified in accordance with the competent person's report.

- (a) On a construction site where hoists are often hired in, any rectification of defects is normally carried out by the hoist supplier. However, the hirer (user) is responsible for ensuring that the work has been done.
- (b) If the using employer owns the hoist, they will need to make arrangements for the work to be done.
- (c) If the hoist has been hired under a "bare lease" agreement, the using employer will need to make arrangements for the work to be done.
- (d) If the hoist has been cross-hired, the parties involved need to determine who is responsible for the work, prior to the commencement of the hire.

8. Managing the Examination of Hoistway Protection

8.1 Introduction

A construction hoist is essentially a modular machine, erected on site from a number of components which are adapted or adjusted for the particular circumstances of the installation. Part of the installation process is the provision of landing gates, landings, run-offs and protection of the hoistway. These arrangements serve a threefold purpose:

- prevention of persons and/or materials falling from height;
- safe access of materials and persons to and from the hoist platform/cage;
- prevention of persons being struck by any part of the moving hoist.

Depending on the type and design of hoist and the contractual arrangements between the hoist owner and user, the provision of the hoistway and its associated gates and landings is not always carried out by the hoist installer. Current practice covers a wide spectrum. The installer may be responsible for all aspects of the hoist installation, including the provision and fixing of ties, landings, gates, run-offs and hoistway protection. In other situations, the installer provides and erects the basic hoist and leaves the user or his sub-contractors to hang landing gates, provide the landings and run-offs and ensure that the hoistway is adequately protected.

The ultimate responsibility for the management of the hoistway protection rests with the principal contractor and/or user. They should ensure that the following points form part of the planning and management process:

1. The nominated contractors involved in the installation process must each be made aware of their scope of work and responsibilities. Regulation 11 of the Management of Health and Safety at Work Regulations 1999, requires these different parties to co-operate and co-ordinate their different activities.
2. Any use of the hoist before the installation is complete, such as assisting in the installation of the scaffolding which forms part of the hoistway protection and the landing interface, must only be carried out by authorised and trained personnel working to a method statement based on risk assessment. LOLER only allows the use of goods-only hoists for man-riding in exceptional circumstances. Reference should be made to the hoist manufacturer's instructions which may have specifically included the erection/dismantling procedure from the platform/cage.
3. Once the hoist installation has been completed to the satisfaction of the installer and before the hoist is taken into normal intended use, the whole installation must be thoroughly examined by a competent person. Any defects highlighted in the examination must be rectified before the hoist is put into service.
4. After the hoist has been put into service, adequate arrangements must be made to ensure that the hoist installation, including landing interfaces and hoistway protection, is maintained, inspected and thoroughly examined as detailed in the various sections of this Best Practice Guide.

5. The nominated contractors involved in the dismantling process must each be made aware of their scope of work and responsibilities.

8.2 Thorough examination of the hoistway

Once the complete hoist system of machinery, mast, ties, gates, landings, run-offs and other hoistway protection has been completed, and before the hoist is taken into service, LOLER requires that a thorough examination of the whole installation is carried out by a competent person (see Section 6). This competent person is often an employee or representative of the hoist owner/installer. However, the responsibility for ensuring that this thorough examination is carried out and that any defects are rectified rests with the user.

Although the thorough examination of the hoistway protection includes establishing the presence of all elements, it is not the responsibility of the competent person carrying out the examination to verify their structural integrity, but he must satisfy himself that there are no obvious defects. The planning, design and structural integrity of the hoistway protection and the landing interfaces remains the responsibility of the user.

For example, the threshold and landings must be able to withstand at least the rated load of the hoist. This is particularly important if pallet trucks are to be used to unload the platform as significant point loads can be transferred to the hoist floor, ramps and landings.

The design of hoistway protection may vary with every installation. Guidance on suitable solutions can be obtained from Harmonised European Standards (see Section 11 Bibliography) and the hoist manufacturer.

9. Maintenance

9.1 Introduction

The Health & Safety at Work etc Act 1974 places a general duty on employers to provide and maintain plant that is, so far as is reasonably practicable, safe. Regulation 5 of PUWER 98 builds on these general duties to ensure that work equipment is maintained in an efficient state, in efficient working order and in good repair.

For the purposes of satisfying the above legislation, maintenance can be defined as the process of ensuring that the hoist is preserved in a suitable condition to ensure that it continues to operate safely. However, from the hoist supplier's perspective, the scope of maintenance is usually wider to include other actions to ensure that the hoist operates efficiently and productively with the aim of reducing operating costs by maximising the time that the machinery is available for use.

9.2 Frequency

The frequency at which maintenance activities are carried out shall take into account the intensity of use, operating environment, variety of operations and the consequences arising from malfunction or failure. The maintenance programme should be based on the manufacturer's recommendations and the hoist supplier's risk assessment and should address those parts of the equipment, that are likely to deteriorate and lead to dangerous situations.

A formal system of planned preventative or condition-based maintenance should be adopted. The manufacturer's or owner's maintenance instructions must be available to those persons involved in maintaining the equipment.

For further information on different maintenance management techniques see "*Safe Use of Work Equipment, PUWER 98, Approved Code of Practice and Guidance*", paragraph 125.

9.3 Maintenance personnel

Maintenance activities should only be carried out by those persons who possess a sound knowledge of the particular hoist and have been assessed as being competent to carry out the work.

Maintenance personnel must be provided with such information, instruction and training as is necessary to enable them to carry out the work in a safe manner and without risk to their health. The risks incurred during maintenance activities should be assessed by the:

- appointed person (supplier) and a safe system of work implemented;
- appointed person (user) for risks specific to the site.

Where hoists are on hire, it is important for both the supplier and the user to establish which party is responsible for maintenance. The terms of the agreement should be set out or recorded in writing.

10. Record Retention

10.1 Introduction

The keeping and retention of records, is essential. There are minimum periods of retention set out in LOLER. Good business practice seeks to establish “lifetime records” and this practice is to be recommended as a key tool for improving safety as well as possibly enhancing the residual value of the equipment.

10.2 Maintenance records

There is no legal requirement for the keeping of records of maintenance, however, regulation 5 of PUWER 98 states that when any maintenance log is kept it should be kept up to date. It is good practice to retain records of repairs and maintenance for the life of the machine in order to identify repeated defects or trends. This will provide evidence that maintenance has been carried out and will be useful in planning future maintenance schedules.

10.3 Records of thorough examination

Regulation 11 of LOLER requires that records of inspection and thorough examination must be kept. The retention period depends on the circumstances in which the relevant inspection and thorough examination were conducted:

- thorough examination of the hoist before it is first put into service - keep the report until the equipment is taken out of use;
- subsequent thorough examinations of the hoist - keep records until the next report is made or for two years, whichever is later;
- inspections at intervals between thorough examinations - keep the report until the next report is made;
- thorough examination of the hoist after assembly and before use on a new site - keep the report until the equipment is no longer used on that site.

The records can be provided in writing, electronically or on computer disk provided they are secure and can be reproduced as necessary.

11. Bibliography

Legislation

The Health and Safety at Work etc Act 1974

Lifting Operations and Lifting Equipment Regulations 1998, SI 1998/2307, (LOLER)

Provision and Use of Work Equipment Regulations 1998, SI 1998/2306, (PUWER 98)

Management of Health and Safety at Work Regulations 1999, SI 1999/3242, (MHSWR)

Electricity at Work Regulations 1989, SI 1989/635

Construction (Design and Management) Regulations 1994, as amended.

HSE Publications

Safe use of lifting equipment, LOLER (1998), Approved Code of Practice and Guidance L113, ISBN 0-7176-1628-2

Safe use of work equipment, PUWER 98 (1998), Approved Code of Practice and Guidance, L22, ISBN 0-7176-1626-6

Electrical Safety on Construction Sites, HS(G) 141 (formerly GS24), ISBN 0-7176-1000-4.

Best practice for the procurement and conduct of non-destructive testing

- Part 1 – Manual ultrasonic inspection

- Part 2 – Magnetic particle and dye penetrant inspection

(These can be downloaded from the HSE internet site www.hse.gov.uk/dst/ndt1.pdf and www.hse.gov.uk/dst/ndt2.pdf)

British, European and International Standards

British Standard BS 7212:1989 Code of practice for safe use of construction hoists

ISO 4309:1990 Cranes - Wire ropes - Code of practice for examination and discard

BS EN 473:2000: Non-destructive testing. Qualification and certification of NDT personnel. General principles.

BS EN 12158-1:2000 Builders hoist for goods - hoists with accessible platforms

BS EN 12158-2:2000 Builders hoists for goods - inclined hoists with non-accessible load carrying devices.

BS EN 12159:2000 Builders hoists for persons and materials with vertically guided cages.

CPA Publications

CPA Best Practice Guide on the Installation, Use, Maintenance, Inspection, Examination and Testing of Transport Platforms.

CPA Safety Instructions (leaflets for hoist operators)

- 10.1 Vertical Goods Hoist
- 10.2 Passenger/Goods Hoist
- 10.3 Inclined Goods Hoist

12. Appendices

Appendix 1

Daily Pre-use Checks - Rack & Pinion and Rope Hoist

Pre-use checks should be carried out as required by the manufacturer's handbook. The results of daily pre-use checks can be recorded using the appropriate form in Appendix 3.

Typical actions are listed below and should be selected as appropriate to the hoist:

- (a) Check that all ropes are correctly positioned on their sheaves.
- (b) Check for the correct operation of all flaps, gates and interlocks on the cage.
- (c) Check for the correct operation of all flaps, gates and interlocks at the landings.
- (d) Check correct operation of the roof trap door and interlocks (on passenger hoists)
- (e) Check correct operation of the base enclosure landing gates and interlocks.
- (f) Check that the hoistway is clear of obstructions.
- (g) Check that the mast ties are secure (with no undue movement).
- (h) All operational must be checked for correct operation.
- (i) Emergency controls (with the exception of the safety brake) must be checked for correct operation.
- (j) Check the condition and operation of the mains isolator switch.
- (k) Run the hoist empty through its operational cycle to check the correct operation of the upper and lower limit switches.
- (l) Check the satisfactory operation of the trailing cable storage system.
- (m) Check that the guide springs are intact.
- (n) Check to ensure that the brake is operating normally.
- (o) Check for any unusual noises from motors, gearboxes etc.
- (p) Check that all information, instruction, operating and warning notices are clear and readable.
- (q) Check that there is no leakage from any fuel system.
- (r) Check the condition of any fuel container and that any fuel cap is secure.
- (s) Check any audible or visual warning alarms for correct operation.
- (t) Check that any communication system fitted between cage and ground level is in good working order.
- (u) Check for excessive debris in the base enclosure and on the cage roof.

Appendix 2

Weekly Inspection - Rack & Pinion and Rope Hoists

Weekly inspections should be carried out as required by the manufacturer's handbook. The results of weekly inspections can be recorded using the appropriate form in Appendix 3.

Typical actions are listed below and should be selected as appropriate to the hoist:

- (a) Inspect the structure for damage, e.g. bent mast bracings or ties, indentations on mast guides, cracked welds, loose bolts and other fasteners.
- (b) Check that there are no obvious signs of damage, excessive wear or corrosion of any hoisting rope.
- (c) Check that wire rope terminations, pins and retaining devices are in their correct position and secure.
- (d) Check that sheaves, pulleys and drums are not damaged and that bushes are not worn or seized.
- (e) Check engagement of any rack and pinion and that there is no undue wear or damage and sufficient lubrication exists.
- (f) Check the gearbox for leaks.
- (g) Check that all tie bolts are secure with no undue movement
- (h) Check that all foundation bolts, rack retaining bolts and other fixing bolts are fitted and secure.
- (i) Check that guide rollers are correctly positioned and operational.
- (j) Check that brake and clutch friction linings and drum paths have no undue wear and the brakes are effective.
- (k) Check that all hoistway protection and machinery guards and their fasteners are in place and secure.
- (l) Check that electric cables are not damaged and that bare wires are not visible.
- (m) Check that any plug or socket is in good condition, the casing free from cracks, the pins not bent or the socket not blocked with debris or dirt.
- (n) Check that there are no taped or other non-standard joints in any cable.
- (o) Check that any cable covering has not been pulled out of the grips at the plug or equipment. (The coloured insulation of the internal wires should not be visible).
- (p) Check the outer casing of electrical equipment for damage and for loose or missing parts or screws.
- (q) Visually check that no electrical equipment is exposed to contamination by oil, grease, water or dirt.
- (r) Check to ensure that there are no overheating or burn marks on any plug, cable or other equipment.
- (s) Check the operation of any RCD power breaker by operating the test button.
- (t) Visually check the overspeed safety device.

Appendix 3

Examples of Checklists and Report Forms

Many companies find it advantageous to use a pro-forma which acts as an aid to ensure that all checks, inspections and examinations are completed. Such forms should include sections to record the nature of the defects found. Examples are given in this appendix:

- Daily Pre-use Checklist and Report
- Weekly Inspection Checklist and Report
- Thorough Examination and Maintenance Checklist
- Report of Thorough Examination

Faults and defects that are corrected or repaired at the time of inspection should be recorded so that management is made aware of them and can take steps to remedy persistent faults.

If the person carrying out the daily check or weekly inspection finds a defect where he is unsure of its effect on the safety of the hoist, it should be reported to the appointed person.

Note: the "Thorough Examination and Maintenance Checklist" document is not a thorough examination report or a maintenance program but serves only as a guide for areas of attention.

Construction Hoist Daily Pre-use Checklist and Report



Week Commencing	Company	Site
------------------------	----------------	-------------

Hoist Type	Serial No.	Plant No.
-------------------	-------------------	------------------

✓ = in good order ✗ = defect

Hoist Item	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Ropes correctly positioned on sheaves							
Operation of cage flaps, gates & interlocks							
Operation of landing flaps, gates & interlocks							
Roof trapdoor & interlock (passenger hoist)							
Base enclosure gates & interlocks							
Hoistway clear of obstructions							
Mast ties are secure (no undue movement)							
Check operating controls							
Emergency controls (except safety brake)							
Mains isolator switch operation & condition							
Operation of upper & lower limit switches							
Operation of trailing cable storage system							
Check cable guide springs are intact							
Check brake operates normally							
No unusual noises from motor, gearbox etc.							
Notices - instruction, operating & warning							
Leakage from any fuel system							
Condition of fuel container & security of cap							
Operation of audible or visual warning alarms							
Communication system cage to ground level							
Debris in base enclosure & on cage roof							
Initials of person carrying out checks							

Details of defects found & repairs

Name of Appointed Person	Signature	Company
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Construction Hoist Weekly Inspection Checklist and Report



Date	Company	Site
-------------	----------------	-------------

Hoist Type	Serial No.	Plant No.
-------------------	-------------------	------------------

All daily checks to be carried out prior to weekly inspection

✓ = in good order R = repaired fault ✗ = defect

Hoist Item	✓, R or ✗
Inspect structure for damage, e.g. bent mast bracings or ties, indentations on mast guides, cracked welds, loose bolts & fasteners	
Hoist rope for obvious signs of damage, excessive wear or corrosion	
Wire rope terminations, pins & retaining devices for damage, correct position & security	
Check sheaves, pulleys & drums for damage & that bushes are not worn or seized	
Rack and pinion for engagement, undue wear, damage and lubrication	
Inspect gearbox for leaks	
Check that tie bolts are secure with undue movement	
Check foundation bolts, rack retaining bolts and other bolts are fitted & secure	
Check guide rollers are correctly positioned and operational	
Check brake & clutch friction linings & drum paths for wear & that brakes are effective	
Check hoistway protection & machinery guards & fastenings are in place & secure	
Electrical cables - check for damage and bare wires	
Plugs & sockets - check for condition, cracks, bent pins and debris or dirt in sockets	
Cables - for taped or non-standard joints	
Check that cable covering has not been pulled out of plug or equipment grips	
Check casing of electrical equipment for damage & loose or missing parts & screws	
Check electrical equipment for contamination by oil, grease, water or dirt	
Check cables, plugs and equipment for overheating or burn marks	
Check any RCD power breaker by operating test button	
Visually check overspeed safety device	

Details of defects found & repairs - inform appointed person

Contacted hoist supplier	Yes	No
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Carried out by	Signature	Company
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Construction Hoist Thorough Examination and Maintenance Checklist

Company					Site						
Date		Hoist Type			Serial No.		Hour Clock		O/S No.		
KEY: A – in good order B – requires early attention C – requires immediate action D - Not applicable											
ENCLOSURE	1. Side-panels					STRUCTURE	44. Mast sections				
	2. Cable basket(s) & trailing cable(s)						45. Mast bolts and nuts				
	3. Electrical panel						46. Mast racks and bolts				
	4. Ultimate limit ramps						47. Rack lubrication				
	5. Isolators						48. Cable guides standard				
	6. Gate/door						49. Cable guide device & trolley				
	7. Foundation fixing						50. Landing beams				
	8. Buffer springs						51. Pipe supports				
	9.						52. Wall ties and fixings				
PLATFORM / CAGE	10. Gate, door entrance					GATE DOORS	53. Vertical pipes				
	11. Gate, door exit						54. Limit cams top				
	12. Side panels, roof and floor						55. Limit cams bottom				
	13. Ladder and fixing						56. Cable anchorages				
	14. Limit switches for gates/doors						57. Erection crane and accessories				
	15. Limit switch for trap door						58.				
	16. Ultimate limit switch						60. Landing gates door				
	17. Up limit switch						61. Mechanical interlocks				
	18. Down limit switch					62. Gate cam & switch assembly					
	19. Control switch/buttons					63. Hoistway protection					
	20. Electrical equipment					64.					
	21. Counterweight, rope anchorage					COUNTER-WEIGHTS	65. Counterweight assembly				
	22. Safety notices/signs						66. Rope anchorages				
	23. Lighting						67. Cathead sheaves				
	24. Gate counterweight and ropes						68. Guide rollers				
	25.						69. Buffer springs				
MACHINERY	26. Guide roller, hook assemblies					70. Support ropes					
	27. Guide roller adjustment					71.					
	28. Guide roller wear					SPECIAL EQUIPMENT	72. External call system				
	29. Safety device unit						73. Emergency stop control				
	30. Safety device resetting tool						74. Alarm system				
	31. Drive motors						75. Stop next landing				
	32. Brakes						76. Load sensing				
	33. Brake adjustment						77. H frame clips				
	34. Gearboxes						78. Emergency lowering				
	35. Gearbox oil levels						79. No undue noises				
	36. Drive pinions						80. Guards replaced & secure				
	37. Drive pinion wear						81.				
	38. Drive pinion adjustment							82. Load control test			
	39. Safety pinion					84. Load test					
	40. Safety pinion wear					85. Drop test					
	41. Safety pinion adjustments					86. Site register signature					
	42. Centrifugal weights					87. Report of thorough examination					
	43.					88.					

Notes		
Name	Company	Signature

Construction Hoist Report of Thorough Examination



(As required by Lifting Operations and Lifting Equipment Regulations 1998 - Schedule 1)

Date of thorough examination:	Date of report:	Report No:	Date of last thorough examination:
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Name & address of hirer/user:	Name & address of owner:
-------------------------------	--------------------------

Description of equipment:	Makers name:	
Date of manufacture:	Owners No & serial No:	Location of equipment:
Mast height:	Number of landing gates:	Number of ties:

Safe Working Load:	Test load applied:	Drop test carried out with:	Rated number of persons:	Safety device serial No:
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Examination after installation/assembly at a new location:	Yes / No	State if any parts were inaccessible: Particulars of other tests carried out during this thorough examination:
Periodic examination 6 Monthly:	Yes / No	
Periodic examination 12 Monthly:	Yes / No	
Examination following alteration/repair Or exceptional circumstances:	Yes / No	
Is the equipment installed correctly:	NA / Yes / No	Is the equipment safe to operate: Yes / No

Particulars of any defects, repair, renewal or alteration required which is or could become a danger to persons:	Date (time) the defect must be rectified:
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I hereby declare that the equipment described in this report was thoroughly examined and was found to be free from any defect likely to affect safety, (unless otherwise stated above) and that the particulars are correct.

Name of competent person:	Signature:	Job title/qualification:
Name of authenticating person:	Signature:	Job title:

Address of competent person or his employer:
--

The next thorough examination will be due on or before:
--

Appendix 4

CHIG Thorough Examination of Hoists Working Group

Working Group Members

Geoff Beentjes	Hoist-It-Services Ltd
Adrian Bolton	Intervect UK Ltd
Ian Dyer	IMER Direct (GB) Ltd
Keith Hancock	HAKI Ltd
Mike Nottage	Hewden Plant Hire
Iain Paterson	Health and Safety Executive
Antony Thompson	Health and Safety Executive
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