



**Suspended Access
Equipment**

Guidelines

**Guidelines for the Thorough Examination of
Suspended Access Equipment and Building
Maintenance Units (Permanently installed)**

GUIDELINES

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INTRODUCTION

The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) introduced new requirements for the safe provision and use of lifting equipment. Regulation 9 of LOLER requires that all equipment provided for use in work activities is thoroughly examined by a competent person at regular intervals. In addition Regulation 5 of the Provision and Use of Work Equipment Regulations 1998 (PUWER) provide for equipment to be properly maintained. This applies to all Suspended Access Equipment (SAE) and Building Maintenance Units (BMUs).

The aim of these Guidelines is to achieve consistency of examination and testing, and to present periodicities for supplementary examination and test. The results of the risk assessment may necessitate variations to the nature of the examinations and tests described and to the frequency with which they are performed.

In addition, due to the location of the equipment, companies and employees should be aware of the Work at Height Regulations and other known risks. The latter includes radiation hazards where the work area has telecommunications and other masts present. HSE recommend that building owners/managers should ensure a risk assessment of the area has been carried out and is available to demonstrate the safe working areas. Where this is not available Engineer Surveyors should request such a site survey for radiation safety and refer back to their employer.

These Guidelines have been framed in the context of the requirements of the Provision and Use of Work Equipment Regulations 1998 (PUWER 98), The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER 98), BS 6037, BS EN 1808 and other applicable British Standards.

These Guidelines are composed of four sections:

- 1 Scope of examination considered by the competent person during the thorough examination of suspended access equipment and building maintenance units.
- 2 Detailed guidance to the competent person for supplementary examination and tests to ensure the equipment is safe for continued use with an information flowchart at Annex A.
- 3 Detailed guidance to the competent person for supplementary examination of track hold down units (HDUs) with an information flowchart at Annex B.
- 4 Supplementary examination and test certificates — Documentation to be provided when such examination/tests have been carried out. These are to be made available to the Competent Person as required.

1 SCOPE OF THOROUGH EXAMINATION

This scope of thorough examination is applicable to both manual and powered permanently installed Suspended Access Equipment (SAE) and Building Maintenance Units (BMUs).

Acceptance and rejection criteria have not been addressed within the scope. Such criteria are covered by externally published documentation and guidance e.g. manufacturers data, British Standards, Health & Safety Executive (HSE) documentation, SAFed and industry guidance.

This scope covers activities that should be undertaken at each thorough examination and details considerations that should be made by the competent person. However, the competent person may require additional specific tests not detailed in the scope of these Guidelines e.g. following exceptional circumstances.

In cases where there are grounds for concern and the condition of the building maintenance unit and safety critical components can neither be ascertained nor substantiated, the competent person may require tests to be carried out as described in Section 2 of these Guidelines (refer also to Annex A). These tests can be used as a reference by the competent person to expand elements of the thorough examination.

An Examination Scheme prepared under Regulation 9 of LOLER 98 may detail additional requirements to those outlined in these Guidelines.

1.1 General

A thorough examination should include the following:

- a) Assessment of safe access and egress to the structure together with any safe systems of work that may be utilised.
- b) Visual examination of electrical supply for physical condition of wiring, burnt or loose connections and deteriorated or damaged wiring / sockets
- c) Evidence of any water ingress to equipment that is likely to be detrimental to its safe operation
- d) Controls for correct operation and marking in all modes
- e) Motor(s) and drive arrangements for security/ fitment of parts, wear or deformation
- f) Safe and efficient operation of all safety devices, (e.g. isolators, stop buttons, trip bars, overload detectors, travel limits)
- g) Marking of capacity, operation instructions, manufacturers details (including CE marking where appropriate), hazard identification markings, safety notices, isolator identification, detail of any additional tests / examination / exposure of enclosed or hidden parts,
- h) Assessment of site specific safety requirements and efficient operation of communication devices or systems utilised at site during equipment use
- i) Evidence of adequate maintenance e.g. lubrication
- j) Evidence of thorough examination and periodic inspection and (where appropriate) testing
- k) Correct reeling of electrical cables, travel, suspension and safety ropes
- l) Functional and operational test of all motions.
- m) Safety device and / or associated restraining systems (for attachment of safety harnesses).

1.2 Tracks / Davits

In addition to the general aspects, a thorough examination should also include the following:

- a) Track or rail fixing bolts and associated HDUs for correct fitment, condition and security. This may be supplemented by periodic detailed examination of the foundation unit under the roof lining or pillar cap to establish effects of weathering on steelwork. This examination will be requested at the discretion of the competent person based on history of individual units, evidence of water ingress or deterioration of mountings and common guidance. (Refer to Annex B – Flowchart for examination of a HDU)
- b) Where underslung tracks are built into a building façade, exposure of fixings may also be required on a periodic basis as outlined above
- c) Track, turntables, shunts and sidings for alignment, security, corrosion, cracks, deformation, structural defects
- d) End stops for alignment, security, suitability
- e) Davit and davit sockets for structural defects, integrity, deformation and compatibility
- f) Any associated raising /lowering platform for the access equipment should be examined as a separate item and reported upon independently. The platform unit should be assessed to be compatible to the track / cradle system utilised and that a safe system of work is employed.

1.3 Trolley unit

In addition to the general aspects, a thorough examination should also include the following:

- a) Trolley unit structure, chassis and arms for corrosion, security, alignment and suitability for use
- b) Alignment to roof track or system, together with assessment of roof / track obstructions that may impede the safe and free function of the trolley unit during normal use
- c) Condition and suitability of rope anchorage points and any other attachment
- d) Slew ring(s) and winch mounting unit(s)
- e) Luffing screw(s) and assessment of wear of leadscrew nut(s)
- f) Derricking devices and attachments
- g) Jib structure, attachments and pulleys for corrosion, physical damage, alignment and weld defects
- h) Testing for correct function, limit switches/devices to all motions
- i) Condition of tyres, wheels, uplift or guide rollers / assemblies, track braking units, restraining devices, etc.
- j) All linkage pins in the trolley structure
- k) Traversing drive system such as motors, ropes, rope retainers, chains, etc.

1.4 Suspension

In addition to the general aspects, a thorough examination should also include the following:

- a) Condition and suitability of suspension and safety ropes, their anchorages (and upper termination) together with an assessment of any associated safety devices
- b) Drums for condition, security, even layering device and correct function
- c) Functional check of slack rope devices
- d) Alignment and correct function of runners in building mullions together with associated safety cut out switches e.g. safety devices in the event of 'hang up'
- e) Confirm fitment and correct function of lateral restraining devices relating to the building together with associated electrical monitoring where appropriate
- f) Confirmation of correct function of up and down cradle travel limits or safety stops including adequate suspension rope length and suitable rope termination
- g) Even and correct laying of ropes on the winch drum(s)
- h) Rope storage facilities where appropriate
- i) Where suspension safety devices are fitted (such as block stops, overspeed devices) these are to be examined for effective operation.
- j) Functional check of any overload device

1.5 Cradles / Bosuns Chairs

In addition to the general aspects, a thorough examination should also include the following:

- a) Assessment of suitable and safe access and egress to cradle unit
- b) Confirmation of suitable attachment and function of all safety devices including upper / lower travel limits, obstacle trip bar(s), and overload devices
- c) Cradle structure frame, flooring, guard rails, toeguards and side infills
- d) Security and condition of cradle side cushions and rollers / pads
- e) Suitability, function and condition of any access gates to the cradle unit
- f) Security, stability and condition of cradle extension platforms. This should include assessment of safe operating and usage instructions.
- g) Seat attachment on bosuns chairs for suitability, condition security of attachment
- h) Condition and suitability of bucket/accessories hoops and security of attachment to unit

1.6 Winches

In addition to the general aspects, a thorough examination should also include the following:

- a) Function of emergency lowering systems together with instructions for use.
- b) Assessment of condition and effective operation of the secondary and primary braking systems
- c) Correct fitment and suitability for installation together with attachments and associated safety devices
- d) Winch unit for correct and safe function and correct spooling of ropes

1.7 Travelling Ladders and Gantries

Travelling Ladders and Gantries are included in this scope as they are increasingly being introduced for building maintenance functions. This equipment is permanently installed and can be quite complex in its construction and method of use.

1.7.1 Travelling Ladders

In addition to the general aspects of building maintenance access equipment, a thorough examination should also include the following:

- a) Ladder rungs for security, damage, deformation, and corrosion.
- b) Ladder frame and attachment to top and/or bottom runners.
- c) Any traverse mechanism and associated ropes and equipment
- d) Where fitted, any cage assembly should be examined for structural defects and condition. This would include any fitted winches, suspension ropes and safety devices (this examination should be similar to that of a cradle where fitted)
- e) Any traverse restraining system or brakes (to prevent movement in wind)

1.7.2 Travelling Gantries

In addition to the general aspects a thorough examination should also include the:

- a) Gantry rails and any associated holding down/ supporting bolts. The examination would stop at the rail attachment to the building.
- b) End carriages and wheel attachments running on the track
- c) Any fixings (such as central king post bearing) that enable the structure or cradle to rotate
- d) Gantry structure for weld defects, damage, corrosion, deformation
- e) Guard rails, mid rails, toe boards, flooring, safety harness attachment points
- f) Any attachments that may be fitted to the structure
- g) Where fitted, any cage assembly should be examined for structural defects and condition. This would include any fitted winches, suspension ropes and safety devices (this examination should be similar to that of a cradle where fitted)
- h) Any traverse restraining system or brakes (to prevent movement in wind)

2. SUPPLEMENTARY TESTS

2.1 General

It is recommended that certain components/items be subjected to periodic detailed examination to supplement the thorough examination. The extent and periodicity of these supplementary examinations should be determined by carrying out a risk assessment and will depend upon the design and duty of the particular equipment. Where the duty holder has not had such a risk assessment carried out the following is given as guidance to the competent person carrying out a thorough examination.

- a) Existing documented proof load tests should be considered as being valid up to their expiry dates. The following tests should then be recommended, with any manufacturers recommendations being taken into consideration.
- b) In cases where there are grounds for concern and the condition of the building maintenance unit and safety critical components can neither be ascertained nor substantiated, the competent person may require tests to be carried out as described in these Guidelines. The list of examination/tests given in this document are non-exhaustive.

2.2 After two years service

At two yearly intervals the tests described in section 2.2.1 and 2.2.2 should be arranged to coincide with a thorough examination, to allow the competent person to witness them being undertaken.

2.2.1 Cradle or chair — Rated load

The cradle or chair should be evenly loaded with its rated load (this load can include operatives) and traversed around the full extent of its travel. During these tests, the trolley unit should be observed to check how it functions when under load.

2.2.2 Cradle or chair overload device

The function of the cradle or chair overload device should be proven.

2.3. After ten years service

Section 2.3.1 to 2.3.7 show details of the recommended supplementary tests. These tests are not normally required to be witnessed by the competent person carrying out the thorough examinations, but documentary evidence should be provided and reviewed by the competent person. Brief details of the supplementary tests undertaken are to be recorded on the summary certificate shown in Annex C, supported by full details on the relevant certificate C.1 to C.7, as appropriate.

2.3.1 Track HDUs

The track HDUs should be checked in accordance with section 3 of these Guidelines.

2.3.2 Secondary brake

Where a secondary brake is fitted, it should be operationally tested to prove that it suitably engages at the correct speed. This functional test does not have to be carried out with a load in the cradle.

Where it is not possible to prove the operation of the secondary brake in situ, it should be removed, tested at a test house or workshop and re-fitted.

2.3.3 Luffing screw nut

Where it is not possible to accurately assess the level of wear in a luffing screw nut, the nut should be stripped down and checked for condition.

2.3.4 Articulating bogies of trolley units

The articulating bogies of trolley units which take uplift forces should be stripped down to assess the condition of the components. This assessment should include non-destructive testing (NDT) by an approved NDT supplier.

Assessment by exposure/NDT should be considered for other articulating bogie assemblies.

2.3.5 Turntables

Central swivel units of turntables should be stripped down to assess the condition of the components. This assessment should include NDT by an approved NDT supplier.

2.3.6 Winches and stop blocks

Fully enclosed traction type winches and stop blocks should be opened out for inspection of internal components.

2.3.7 Miscellaneous parts

Miscellaneous parts may be required to be tested/exposed as called for by the competent person. Details of any repairs or parts replaced should be recorded on the appropriate certificate in Annex C.

2.4 Records

Records of all tests must be issued to and held on file by the building duty holder for future reference or perusal by competent persons carrying out thorough examinations. The Records must include dimensions/particulars of any safety critical components that were found to be worn but suitable for further service.

3. TRACK HOLD DOWN UNITS (HDUs) (Refer to Annex B)

3.1 General

The two main types of track HDUs presently in use are manufactured from either stainless steel or from ferrous components. It is recommended that the following procedure be adopted for these types of HDU where there is a possibility of water ingress.

3.1.1 Known design details of the HDUs

The design details of the HDUs should be obtained and documentary evidence of this held on file by the duty holder for future reference.

3.1.2 Unknown design details of the HDUs

Where design details are not known, they should be ascertained by excavating HDU bolt units to the recommended sample size and location. After excavation NDT can be used to 'SET' the parameters and pattern and establish acceptance / rejection for the remaining units.

3.2. Sample advice

A sample of HDUs will require excavation for further investigation. The intention should be to select those HDUs which are most likely to have deteriorated. The following advice is given to assist in the selection of a sample.

3.2.1 Size of sample

The sample should consist of at least 5% of the total HDUs.

3.2.2 Corrosion

Corrosion is most likely to occur where HDUs are under greatest lateral stress due to movement of the HDUs allowing water ingress just below the roof surface where crevice corrosion can take place. HDUs at the end of a track are affected most by expansion, and carry greater lateral loadings when the equipment is in use above them, especially if they are adjacent to a turntable.

3.2.3 Lifting or blistering of roof covering

Lifting or blistering of roof covering adjacent to HDUs, damaged flashing or clearance between flashing and HDUs, could indicate possible water penetration.

3.2.4 Markings on sides of plinths

Markings on sides of plinths may indicate products of corrosion leaching from under the flashing.

3.2.5 HDUs in uplift

The sample should concentrate on HDUs in uplift.

3.2.6 Records

Records of which HDUs were exposed and the findings should be retained by the duty holder for future reference and to allow any future samples to be taken from a different area.

3.3 Stainless steel HDUs

3.3.1 Stainless steel units

If the design shows that HDUs are anchored to the main building structure by a stainless steel unit and there are no external indications of concern, no additional action is required.

3.3.2 HDUs anchored by a ferrous unit

If stainless steel HDUs are anchored to a ferrous unit just below the roof surface then a sample (see 3.2) of the HDUs should be exposed and an assessment made of their suitability and condition.

Examples of these types of unit would be:

- a) Where short stainless steel bolts have been anchored to ferrous brackets which are in turn anchored to the main building structure, a sample (see 3.2.5) should be exposed to ascertain the condition of the ferrous brackets. If any of the sample brackets are found to have been unsuitably fitted or corroded in excess of 10% original cross sectional area, then all (not just the sample) of the HDUs should be renewed either before the equipment is used again or within a specified time ascertained by the competent person. If all sample HDUs are found to be in serviceable condition, then a suitable protective coating should be applied to them, the excavated material suitably re-built and then following curing, the equipment load tested over that section of track in accordance with EN1808: 1999. 12.3.

The remainder of the HDUs should be checked using NDT techniques, such as ultrasound, by an approved NDT supplier approved by the competent person, to ensure no major differences are detected.

If no major differences are detected using NDT and the load testing is found satisfactory the equipment may be returned to service.

or;

- b) Where old ferrous HDU bolts have been part excavated in the past, cut short and short lengths of stainless steel studding attached using joining nuts, the same procedure as (3.3.2a) above should be adopted, only checking studs instead of brackets, with particular care being taken to ensure that the joining nuts are suitably located onto both threaded components.

3.4. Ferrous HDUs

These can be divided into two main categories: -

- a) Ferrous hold down bolts encased in concrete.
- b) Ferrous posts anchored to the main building structure.

3.4.1 Ferrous HDUs encased in concrete

A sample (see 3.2) of the HDUs should be fully exposed to ascertain their condition and method of anchorage. If any of the sample are found to have been unsuitably fitted or corroded in excess of 10% original cross sectional area then all (not just the sample) of the HDUs should be renewed either before the equipment is used again or within a specified time ascertained by the competent person.

If all sample HDUs are found to be in serviceable condition then a suitable protective coating should be applied to them, the excavated material suitably re-built and then following curing, the equipment load tested over that section of track in accordance with EN1808: 1999. 12.3. The remainder of the HDUs should be checked by an approved NDT supplier, using techniques such as ultrasound, to ensure no major differences are detected.

If no major differences are detected using NDT and the load testing is found satisfactory the equipment may be returned to service.

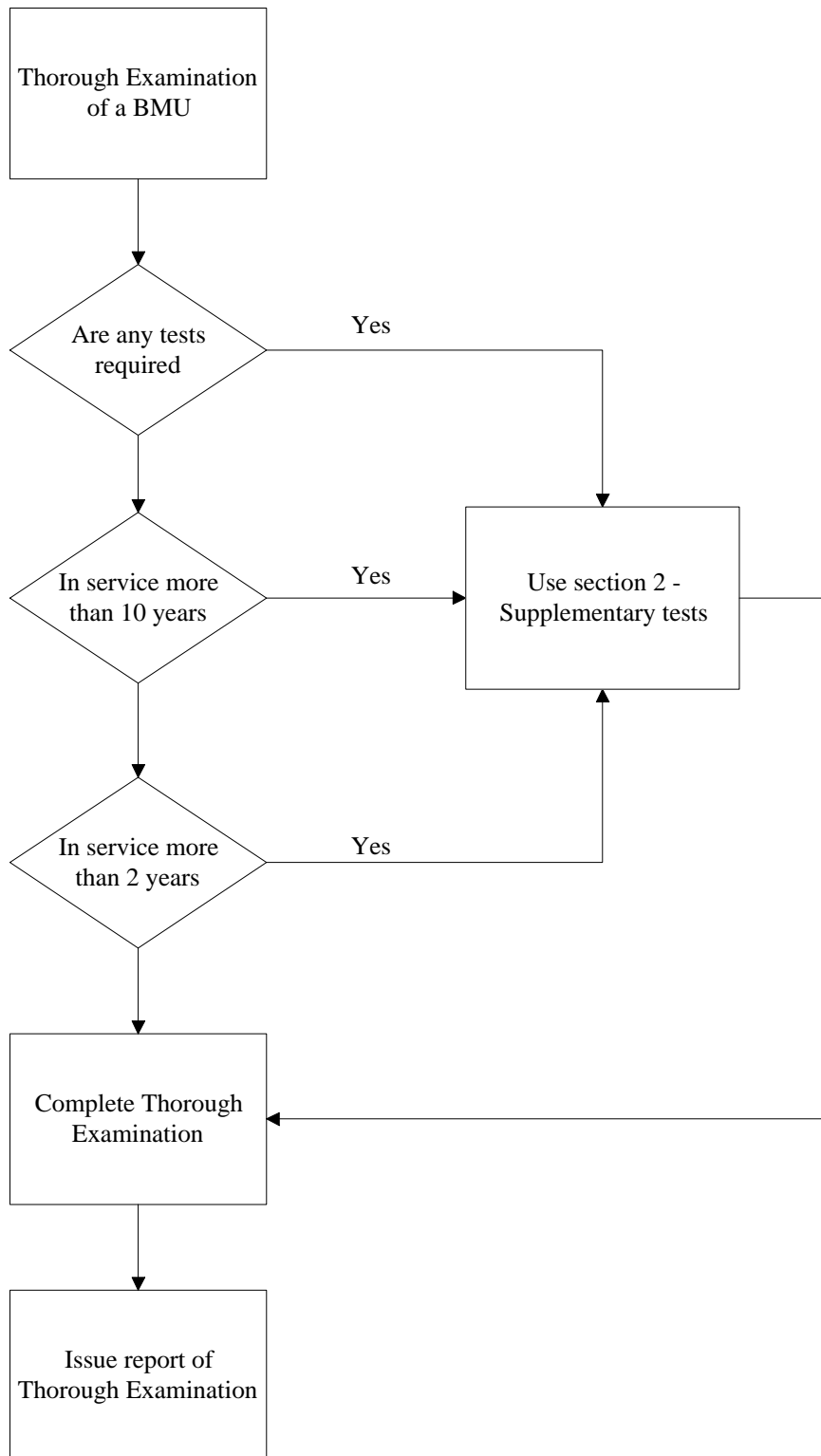
3.4.2 Ferrous posts anchored to the main building structure

The waterproof roof covering adjacent to all HDU posts should be checked for any signs of failure. If cracking of the waterproof covering is detected or there is concern that water penetration may be occurring in any other way then a sample (see 3.2) of the HDUs should be fully exposed to ascertain their condition and method of anchorage. If any of the sample are found to have been unsuitably fitted or corroded in excess of 10% original cross-sectional area then all (not just the sample) of the HDUs should be renewed, either before the equipment is used again or within a specified time ascertained by the competent person.

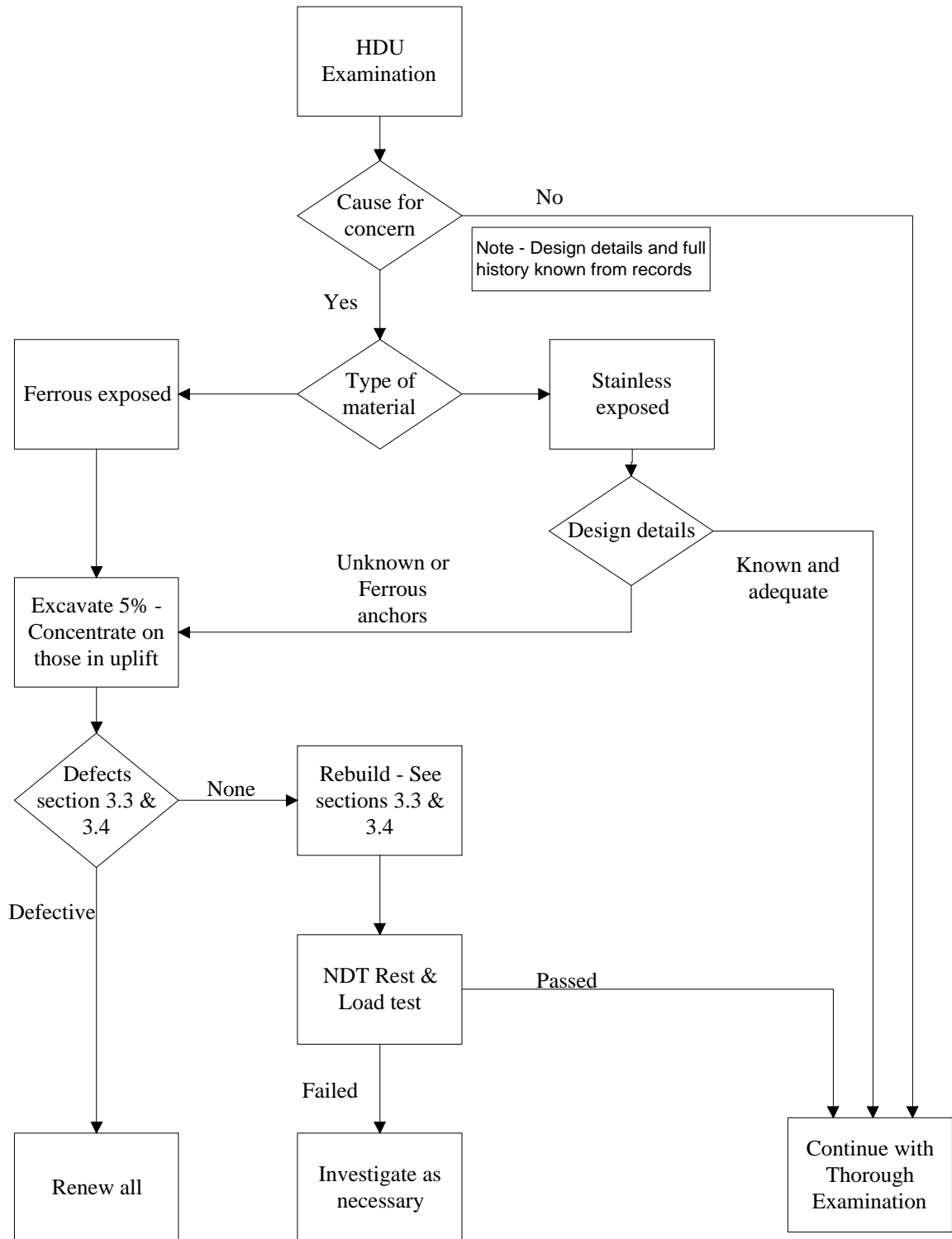
If all sample HDUs are found to be in serviceable condition then a suitable protective coating should be applied to them, the excavated material suitably re-built and then following curing the equipment load tested over that section of track in accordance with EN1808:1999, clause 12.3.

If load testing is found satisfactory, the equipment may be returned to service.

ANNEX A – FLOWCHART FOR TESTING AS PART OF A THOROUGH EXAMINATION



ANNEX B – FLOWCHART FOR EXAMINATION OF A HOLDING DOWN UNIT



ANNEX C — SUMMARY OF SUPPLEMENTARY EXAMINATION AND TEST CERTIFICATES

Summary of attached supplementary examination and test certificates for components or assemblies of Building Maintenance Units

Description of system	
Owner / Occupier of premises	
Location of equipment:	
Owners identification No. of system:	
Manufacturers serial No. of system:	
Annex C – the following equipment:- (* Delete as appropriate)	
C.1 — Hold Down Units *	
C.2 — Secondary Brake *	
C.3 — Luffing Screw *	
C.4 — Articulating Bogies *	
C.5 — Turntables *	
C.6 — Winches and Stop Blocks *	
C.7 — Miscellaneous Parts *	
<p>have been subjected to examination and test in accordance with the requirements of the SAFed guidance — “Guidelines for the Thorough Examination of Suspended Access Equipment and Building Maintenance Units Permanently Installed (LG3)”</p> <p>Full details of examination or test carried out are contained in the appropriate appendix that is attached.</p>	
<p>Relating to the supplementary examination/tests detailed above, the equipment is suitable / unsuitable* for further service. (* Delete as applicable)</p>	

Signed Date

For and on behalf of.

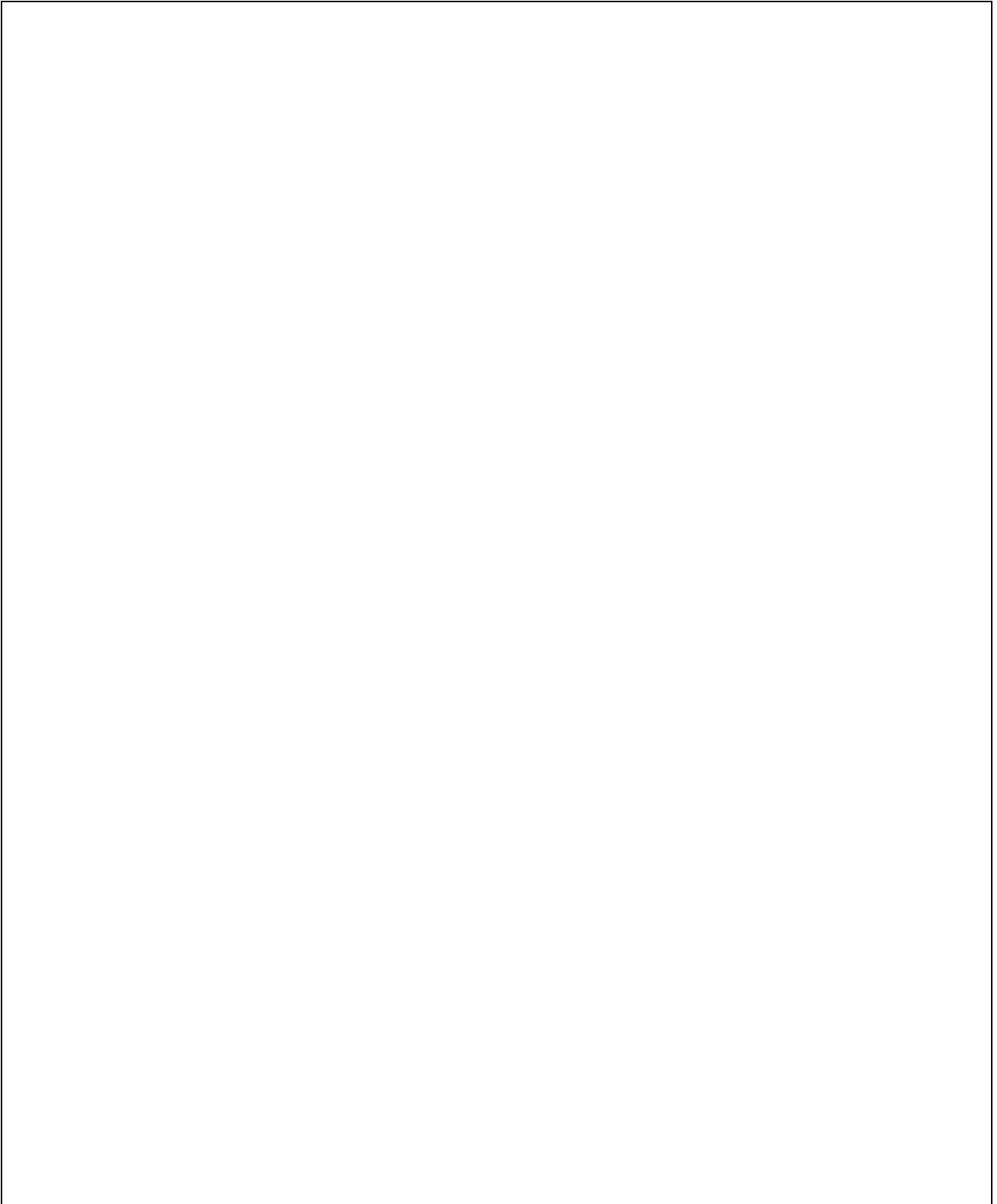
Annex C.1 Track Hold Down Units Exposure (Ref LG3 - Clause 2.3.1)

Site address	
Date of inspection	
Number of units exposed	
Type of unit	
Condition of anchorages	
Total number of units	
NDT results if applicable (full description of NDT to be listed or referenced). NDT documentation to be attached where applicable If no NDT carried – state reason	
Track size	
Other comments / Observation	
Plinths reinstated	Yes/No
Waterproof membrane reinstated	Yes/No
Track reinstated	Yes/No
Load tested	Yes/No
Hold Down Units suitable for further service	Yes / No (Delete as appropriate)

Signed Date

For and on behalf of.

Annex C.1 — Layout of Track Hold Down Units



Annex C.2 Secondary Brake – (Ref LG3 Clause 2.3.2)

Site address	
Date of inspection	
Description of main trolley unit	
Clients identification No of unit	
Manufacturers serial number	
Position of trolley unit (on roof) (if applicable)	
Description of secondary brake	
Visual condition of lining (in respect of wear, glazing, rivets, bonding etc)	
Visual condition drum / disc	
Condition of other supplementary brake systems	
Brake linkage and operating assembly	
Load applied and satisfactory	
At what % speed did the secondary brake operate	
Place of examination/ test	
Other comments / Observation	
Is this secondary brake system suitable for further service	Yes / No (Delete as appropriate)

Signed Date

For and on behalf of.

Annex C.3 Luffing Screw (Ref LG3 – Clause 2.3.3)

Site address	
Date of inspection	
Description of main trolley unit	
Clients identification No of unit	
Manufacturers serial number	
Position on trolley unit (if more than one screw)	
Description of screw unit	
Measured wear /backlash of load nut	
Is this measurement acceptable	Yes / No
Overall condition of lead screw	
Overall condition of luffing nut(s)	
Location of examination	
Other comments / Observation	
Is this luffing screw and nut assembly suitable for further service	Yes / No (Delete as appropriate)

Signed **Date**

For and on behalf of.

Annex C.4 Articulating Bogie Unit – (Ref LG3 - Clause 2.3.4)

Site address	
Date of Inspection	
Description of unit	
Maker	
Model	
Serial number	
Position of bogie on trolley unit	
Type of unit	Counterweight / uplift unit (Delete as appropriate)
Condition of internal parts exposed (to be listed)	
NDT results as applicable (Full description of NDT carried out to be listed or referenced) NDT documentation to be attached where applicable	
Other comments / Observation	
Parts replaced	
Is this bogie assembly suitable for further service	Yes / No (Delete as appropriate)

Signed Date

For and on behalf of.

Annex C.5 Turntable Unit (Ref LG3 – Clause 2.3.5)

Site address	
Date of inspection	
Position of turntable	
Type of turntable	
Condition and structure of centre pivot bolt	
Condition and structure of washers including Oilite washer	
Condition and structure of rollers	
Condition of any safety critical bolts exposed during inspection	
NDT results - as applicable (full description of NDT carried out to be listed or referenced) NDT documentation to be attached where applicable	
Actions required / taken	
Other comments / Observation	
Is this turntable assembly suitable for further service	Yes / No (Delete as appropriate)

Signed Date

For and on behalf of.

Annex C.6 Winches and Stop Blocks (Ref LG3 - Clause 2.3.6)

Site address	
Date of inspection	
Type of winch	
Model	
Serial number	
Rated load	
Year of manufacture	
Other comments / observations	
Parts replaced	
Is this assembly suitable for further service	Yes / No (Delete as appropriate)

Signed Date

For and on behalf of.

Annex C.7 Miscellaneous Parts (Ref LG3 - Clause 2.3.7)

Site address	
Date of inspection	
Description of main unit	
Serial number	
Model	
Description of unit / component tested / exposed and serial number(s)	
Location of unit/component	
Condition	
Other comments / Observation	
Details of repairs / parts replaced	
Is this unit / component assembly suitable for further service	Yes / No (Delete as appropriate)

Signed Date

For and on behalf of.

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