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NON BINDING GUIDANCE TO ENSURE A MINIMUM STANDARD OF COMPETENCE OF PERSONS WHO CARRY- OUT PERIODIC AND ASSEMBLY EXAMINATIONS OF TOWER AND MOBILE CRANES

*SLIC - Senior Labour
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1. INTRODUCTION

The EU Consolidated Use of Work Equipment Directive 2009/104/EC requires tower and mobile cranes to be examined. A number of Member States have National legislation which specifies registration requirements for examiners and requirements for verification of their competence by a recognised or accredited third party. This guidance is not meant to replace those requirements but assist in assessing the competence of crane examiners.

The purpose of such examination is to detect actual and potential defects/weaknesses, and for such to be reported/acted upon so as to ensure safe crane operation.

The purpose of this guidance is to advise on appropriate minimum standards to ensure the competence (and impartiality) of persons carrying-out periodic and assembly examinations of, in particular, tower and mobile cranes. It may have information relevant to the examination of smaller cranes, but does not specifically address them. It also details a management framework which can be used by organisations to ensure and demonstrate the competence of persons undertaking examinations. It also refers to the competence requirements of trainers/assessors *but does not deal with them in detail. It is anticipated that such will assist the mutual recognition of competence and the free movement of services, provided by competent examiners of tower and mobile cranes, across the EU.*

For the purpose of this guidance it is accepted that the term mobile crane is very broad, ranging from one requiring assembly of its structural components, on site before use to those fixed to delivery Lorries. It is for each Member State to determine what aspect of this guidance applies to mobile crane examiners according to National Legislation.

Those seeking to use the services of an examiner will be assisted by this guidance; it can be used as a reference (1) to the level of competence that should be achieved and (2) to justify exclusions where competence falls significantly short or is not confirmed using the approach outlined in this guidance.

This guidance has been developed by a small tri-partite working group, with representation from employees, employers and governments. Members were provided from both the SLIC MACHEx Group and the Advisory Committee on Safety and Health at Work; there was also representation from the European Confederation of Inspection Organisations (CEOC). The agreed Mandate for this working group is in Appendix A.

The scope of this guidance does not cover routine inspections made by crane operators and maintenance personnel.

This guidance does not recommend specific routes for achieving competence such as naming specific qualifications or training courses. It is recognised by the group that such clarification is a subsidiary matter, however it may be beneficial if guidance was available and so it could be a topic for future work.

The preparation of this guidance has been greatly assisted by review and amalgamation of existing guidance and standards, as referenced.

For the purposes of this guidance, reference to cranes will mean tower and/or mobile cranes.

2. COMPETENCE OF EXAMINERS

Competent persons, as referred to in this paper, are those who have the appropriate knowledge, skills and personal attributes to enable them to assess any degradation and to detect defects or weaknesses in a crane, and to assess and report on their importance in relation to the continued safe use of that crane.

Such competence will be gained through training and experience and may be demonstrated by relevant qualifications that also require competence to be demonstrated.

A person who is working toward attaining required components of competence, should be allowed to carry-out examinations of cranes, provided he/she is under appropriate supervision and is undergoing a managed program that leads to full competence. It is recognised that such persons need to gain the experience and knowledge to address their competence shortfall by "on the job" experience, which is appropriately supervised and monitored.

3. QUALIFICATIONS AND EXPERIENCE OF EXAMINERS

Persons undertaking examinations of cranes (or in the process of gaining the specific experience necessary for this work) should have appropriate qualifications and relevant experience in a relevant field of engineering.

4. TECHNICAL KNOWLEDGE, PRACTICAL SKILLS, PERSONAL ATTRIBUTES OF EXAMINERS

Persons undertaking examinations of cranes should have appropriate knowledge, skills and attributes required for crane inspections:

4.1 Technical Knowledge:

- Have an understanding of the legislative requirements for such examinations and any national practice for follow up inspections;
- Have an understanding of crane design standards and codes of practice for the selection and use of cranes, together with the applicable manufacturer's inspection / examination criteria
- Have knowledge of basic crane operation;
- Have knowledge of the defects which may occur during use or in service;
- Have a working knowledge of the safety rules and associated codes of practice that are applicable to cranes;
- Have an understanding of the inspection and maintenance requirements of cranes.
- Have knowledge of appropriate test procedures which may be employed and the interpretation and limitations of those techniques;
- Have access to and an understanding of technical information relevant to the crane being examined;
- Have appropriate knowledge of the type of materials and techniques used in the manufacture and assembly of cranes relevant to their continued safe operation;
- Be aware of the limits of their personal knowledge and when to call upon specialist advice or assistance e.g. for non destructive testing, testing of electronic control systems etc.

- Be familiar with personal and site specific safety requirements;
- Be aware of their own legal responsibilities;
- Be trained in the use, pre-use checks and maintenance of their personal protective equipment.

4.2 Practical Skills:

- Be able to undertake the examination in a safe manner, in particular be competent when working at height and using appropriate access and protective equipment;
- Be capable of detecting defects or weaknesses in cranes which could compromise safety;
- Have sufficient knowledge and experience to assess the importance of defects or weaknesses in a crane and identify what actions need to be taken in order to rectify them. In particular they should be able to:
 - verify that the crane is operating as intended;
 - specify the appropriate timescales within which identified defects or weaknesses need to be rectified;
 - establish that defects identified in the previous report of thorough examination have received attention;
 - assess the correct function of all safety devices;
 - check that manufacturer's warnings are correctly fixed and legible;
 - where national practices permits specify any necessary limitations on the use of the crane;
 - witness any testing required as part of the examination;
 - write an understandable report on the findings of the examination and communicate the findings to the owner of the crane and, if required, any other persons specified under National legislation.

4.3 Personal Attributes:

- Be physically capable to undertake the examination tasks;
- Be comfortable working at height and on their own;
- Have the ability to make technical judgements in a professional manner;
- Be able to communicate clearly with other personnel on site.

5. MANAGEMENT FRAMEWORK FOR ENSURING AND DEMONSTRATING COMPETENCE OF EXAMINERS

5.1 Inspection organisations should only provide competent examiners for the inspection of cranes. To ensure this, inspection organisations should have and work to clear management arrangements and appropriate quality control systems to control the following:

- The identification of background engineering qualifications and engineering experience, so as to ensure that a potential examiner has the necessary knowledge and experience for examining cranes.
- The identification of required technical knowledge, practical skills and personal attributes necessary to ensure that a potential examiner of cranes is competent.
- The selection, training and assessment of potential examiners, to ensure that they are and remain competent. There should be clear arrangements for formally instructing the examiners on what work they can/cannot do and whether such is subject to any supervisory requirements.

- The monitoring of examiners to ensure that their competence is assessed at regular intervals in order to determine if they meet requirements and require further training.

(Reference should be made to Figure 1. This is a flow-diagram which defines this managerial process.)

5.2 A comprehensive individual training record should be established for all examiners of cranes. This should be updated as training is undertaken and as a minimum should include:

- When the training took place;
- Where the training took place;
- The scope of the training including types and models of cranes;
- The duration of the training;
- The outcome of the training;
- Who delivered the training;
- When refresher training is required.
- When competence checks took place, by whom, and a record of any recommended action to address improvements needed.

6. IMPARTIALITY

It is essential that crane examiners are sufficiently independent and impartial to allow objective decisions to be made. This does not mean that the examiner has to be employed from an external organisation. If an organisation that operates cranes has individuals with the necessary competence, then they may carry-out the examination. However, if they do, then the organisation should ensure that the examiners have the genuine authority and independence to ensure that examinations are properly carried-out and that the necessary recommendations arising from them are made without fear or favour.

7. THE COMPETENCE OF TRAINERS / ASSESSORS OF EXAMINERS

Trainers should have the knowledge, skills, experience etc. (as described in this guidance) to be able to train examiners on the aspect of crane inspection they are dealing with. It may be beneficial that they themselves are competent to undertake an examination of a crane to put the specific aspect they are dealing with into the context of a complete examination. To assist their required competency to train others, they should also be able to:

- Understand the role of in-service training and the stages necessary in acquiring and mastering new knowledge and skills.
- Know how and when to use mentoring, coaching and other on-the-job training activities to promote trainee development.
- Understand the benefit of timely, sensitive and effective feedback, in order to facilitate trainee development.
- Have the ability to communicate this feedback both verbally and in clear written form.

Assessors of examiners should be competent to undertake an examination of a crane. To assist their required competency to assess others, they should also be able to:

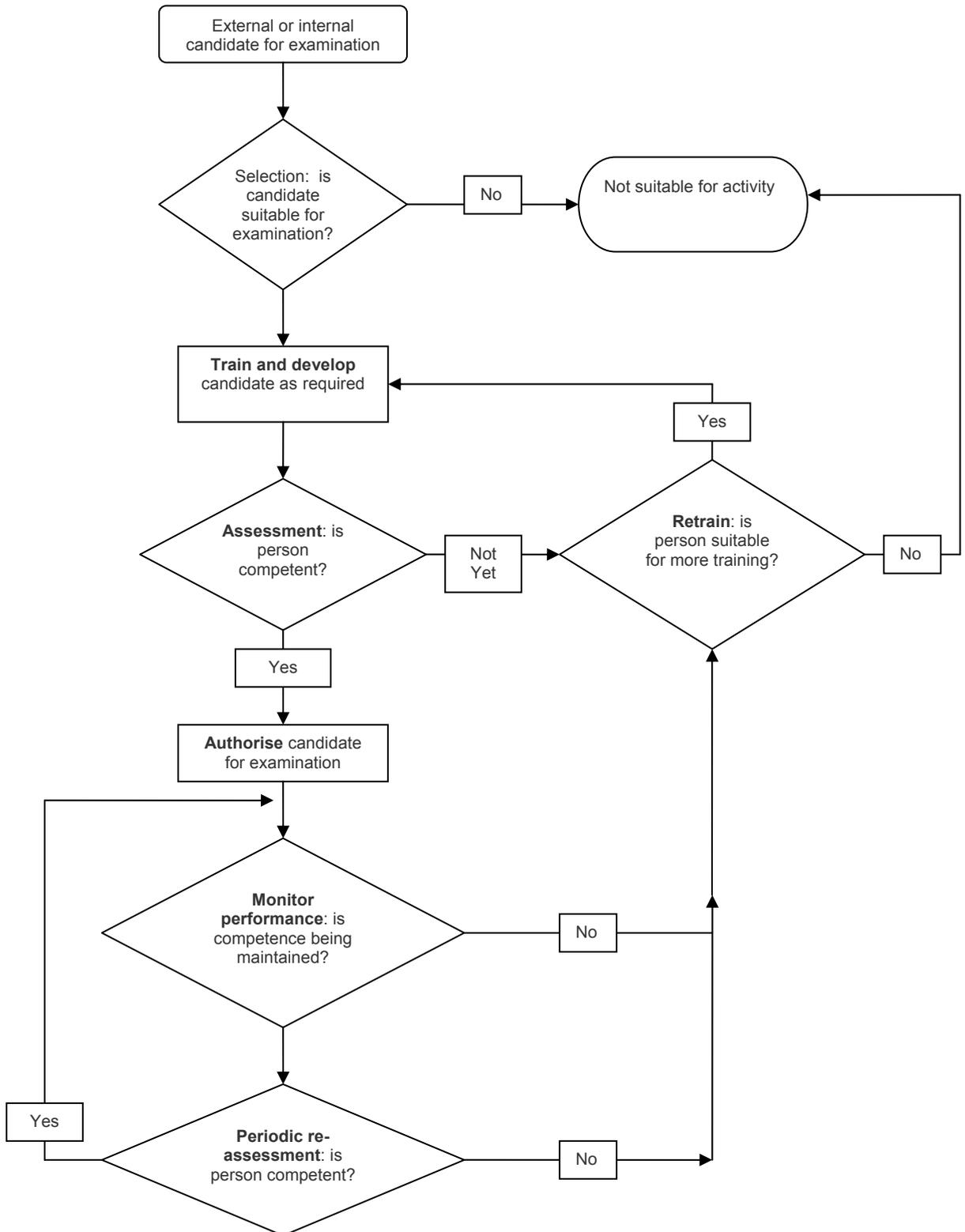
- Understand the function of in-service training as a management strategy to promote and ensure best practice within an organisation.
- Be able to critically appraise both the adequacy of the training provided and the capability of the trainee.

- Understand the limits of acceptability which will enable them to identify whether a trainee has attained the knowledge and skills necessary to be considered a competent person for the examination of the plant in question.
- Have the ability to communicate this feedback both verbally and in clear written form.

8. REFERENCES

- 8.1 ISO/IEC 17020: 2004 – General criteria for the operation of various types of bodies performing inspection.
- 8.2 ISO 23814: 2009 – Cranes – Competency requirements for crane inspectors.
- 8.3 BS 7121-2: 2003 – Code of Practice for safe use of cranes – part 2: inspection, testing and examination.
- 8.4 CEOC TC Inspection CI: Draft 4 – 04.02.08 – Framework for CEOC guidelines on qualification of inspection personnel.
- 8.5 UKAS RG0: 2007 – Guidelines on the competence of personnel undertaking engineering inspections.
- 8.6 UK Construction Plant-Hire Association (CPA) TCIG 0801: 2008 – Best practice guide for maintenance, inspection and thorough examination for tower cranes.
- 8.7 Safety Assessment Federation (SAFed) Standard 01: 2001 – Recruitment, training and competency of engineer surveyors.

Figure 1: Outline processes for the establishment of competence, authorisation, monitoring and reassessment of persons undertaking the examination of cranes. (With permission of UKAS – from RG0: 2007 “Guidelines on the competence of personnel undertaking engineering examinations”.)



Appendix A.

Mandate

“A common approach to ensuring the competence of key inspection personnel (and their assessors) in relation to the operation of tower and mobile cranes.”

Mandate

The SLIC MACHEX Group and the Advisory Committee on Safety and Health at Work has set up a joint Working Party to agree a common approach to ensuring the competence of the personnel (and their assessors) required to carry out periodic and assembly examinations of tower and mobile cranes. With this work to support the mutual recognition of qualifications and the free movement of workers.

The Working Party is a joint SLIC MACHEX / Tripartite ACSH group.

Its remit is:

1. To agree a common approach to ensuring the competence of those carrying out the required periodic thorough examinations required by legislations, in relation to the operation of tower and mobile cranes.
2. To agree a common approach to ensuring the competence of the assessors of such inspection personnel.
3. To prepare draft guidance on the common approach, for consideration by Member States.

Justification

1. A crane is potentially subject to regular erecting, dismantling and transportation. Further a crane may be subject to varied environmental conditions. These factors (along with loading operations) may cause a crane to deteriorate and result in a dangerous situation. The potential risk to workers and the public from a crane failure is extreme.
2. Cranes, based or registered in one Member State, are moved and used in another. This makes mutual acceptance of examinations carried out in different Member States difficult. This is because there can be significant different legal competence requirements for examiners in the various Member States, as shown by a Machex survey – see 5 below. This mandate and project does not address the "political" issue of mutual recognition of certificates, but is to agree a minimum competence level of examiners across the EU that will assist their accreditation across Member States. However, this work may facilitate the wider "mutual recognition" of certificates debated in other fora.
3. Second hand cranes could be sold and moved from one Member State to another, potentially without manufacturer's documents, inspection and maintenance records. Verification of such data is often a difficult task.
4. Existing relevant ISO standards (covering competency requirements for crane inspectors) are not harmonised for the EU.

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5. In 2007, Member States were asked to complete and return questionnaires which contained questions on their legal or administrative arrangements, in relation to the inspection of cranes. The published results showed inconsistent array of arrangements for ensuring and assessing the competence of key crane inspection personnel, such that mutual recognition of competence between Member States was not possible. A common approach across Member States, with regard the standard of competence of key crane inspection personnel (and their assessors), would address consistency.
 6. The launch of the Services Directive aims to encourage the movement of services across the EU (including crane inspection personnel). A common approach across Member States, with regard the standard of competence of key crane inspection personnel (and their assessors), would facilitate confidence in the movement of services in this field.