CODE OF PRACTICE ***for***

Competent Examiners on the Examination of Lifting Appliances and Lifting Gear on Vessels

(issued under Section 44A of the Shipping and Port Control Ordinance, Cap 313)

Marine Industrial Safety Section
Marine Department, HKSAR
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Record on Updating and Amendments

This Code of Practice is issued under section 44A of the Shipping and Port Control Ordinance (Cap 313). This Code was first notified in the Gazette Notice on [date to be inserted when made known] to take effect on [date to be inserted when made known]. Subsequent updating and amendments would be notified to the industry through further notice in the Gazette from time to time. This record sheet is intended for record keeping of the amendment history of this Code.

Amendment No.	Gazette No.	Gazette Date	Effective Date	Topic Areas / pages

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Foreword

Lifting appliances and lifting gear are widely used for load transfer operations in the Hong Kong waters. Statistics shows that the failures of derrick cranes have been one of the major causes of serious accidents resulting in bodily injuries and damages to properties. The accidents can be avoided if derrick cranes are properly designed, tested and examined, maintained and safely operated.

This Code of Practice provides a practical guide to the local marine industry especially to the competent examiners on how to ensure the examination required to be carried out under the Shipping and Port Control (Works) Regulation (the "Regulation") has been or is carried out carefully.

This approved code is issued by the Director of Marine (the Director) under Section 44A of the Shipping and Port Control Ordinance, Cap 313 (the "Ordinance"). Section 44A of the Ordinance empowers the Director to issue code of practice for the purpose of providing practical guidance in respect of any one or more of the requirements of Part V of the Ordinance or of regulations made under the Ordinance. It is important to note that compliance with this Code of Practice does not, of itself, confer immunity from any legal obligations in Hong Kong. Competent examiners are reminded to observe other applicable legal requirements.

Section 44A(4) of the Ordinance stipulates that a failure by any person to observe a provision of an approved code shall not of itself cause him to incur any criminal liability, but where –

(a) in any criminal proceedings the defendant is alleged to have committed an offence either -
   (i) by reason of a contravention of or a failure to comply with, whether by act or omission, the Ordinance or regulations under the Ordinance; or
   (ii) by reason of a failure to discharge or perform a duty imposed by the Ordinance or such regulations; and
(b) the matter to which the alleged contravention or failure relates is one to which, in the opinion of the court, an approved code relates,

then section 44A(5) of the Ordinance shall apply as regards to the proceedings.

Section 44A(5) of the Ordinance stipulates that in any criminal proceedings to which the section applies, the following, namely -

(a) compliance with a provision of an approved code found by the court to be relevant to a matter to which a contravention or failure alleged in the proceedings relates;
(b) a contravention of or failure to comply with, whether by act or omission, any such provision so found,

may be relied on by any party to the proceedings as tending to establish or to negative any liability which is in question in the proceedings.

1. Scope

1.1 In order to ensure that an examination has been or is carried out carefully, this Code of Practice outlines the examination that shall be carried out by a competent examiner so as to enable the competent examiner to arrive at a reliable conclusion as to the safety of the equipment or parts examined.

1.2 In this context, the examination carried out by a competent examiner shall in the least embraces two distinct aspects or dimensions. One is the behavioural aspect, the other one is the scope and extent of the examination covered.

1.3 The behavioural aspect shall be marked by emphases on the manner and conduct the competent examiner shall hold in carrying out, conducting or executing the examination.

1.4 The scope and extent of coverage of an examination shall take into account the nature of the equipment or parts being examined. Basically, the statutory examinations required by the Ordinance and Regulation are the core examinations to be carried out, these examinations are to be supplemented by the recommended examinations as shall be stated in the relevant Codes of Practice. They shall be further reinforced by the specific examinations that the competent examiner shall decide from time to time for the purpose of obtaining positive results and forming a professional judgment or opinion as to the safety of the equipment or parts concerned.

1.5 The examination referred to in this Code includes "inspection" and "thorough examination" which are required to be made under the Shipping and Port Control Ordinance, Cap 313, and the Shipping and Port Control (Works) Regulation.

2. Interpretation

Shipping and Port Control (Works) Reg. s2

Shipping and Port Control (Works) Reg. Schedule 3

2.1 **Competent examiner (合資格檢驗員)**

A competent examiner means a person who -

(a) is registered under the Engineers Registration Ordinance (Cap. 409) within a discipline specified in Schedule 3 of the Regulation, or

(b) is appointed as a competent examiner for the purposes of the Regulation by an organization specified by the Director of Marine under section 2(2) & (3).

A competent examiner should be, by reason of his qualifications, training and experience, competent to carry out any test or examination of a lifting appliance or lifting gear for the purposes of this Regulation.

As at the date of first publication of this Code of Practice, mechanical, and marine and naval architecture are the disciplines specified in Schedule 3 to the Regulation. The list of organizations specified by the Director of Marine as at the date of publication of this Code is attached in Appendix 1.

Shipping and Port Control Ordinance,s2

2.2 **Crane (起重機)**

It means any appliance equipped with mechanical means of hoisting and lowering a load and for transporting the load while suspended; and also all chains, ropes, swivels, or other tackle (down to and including the hook), used in the operation of the appliance; but does not include -

(a) a hoist block running on a fixed rail or wire;

(b) a stacker or conveyer whereby a load is moved by means of a belt or platform; or

(c) an earth or mineral moving or excavating appliance not fitted with a grab.

2.3 **Derrick crane (人字吊臂起重機)**

It means a lifting appliance which is a derrick system being designed and operated as a crane. It is a derrick fitted with an operating winch of such design that the derrick boom can be slewed while suspending a load. A derrick system includes the winch, derrick boom, mast, permanent attachments and accessories.

Shipping and Port Control Ordinance, s2

2.4 **Lifting Appliance (起重裝置)**

It means a crane, winch, hoist, derrick boom, sheer legs, excavator, pile driver, pile extractor, fork lift truck or other self-propelled machine, and any other

description of lifting appliance, derrick and mast bands, goose-necks, eyebolts, and all other permanent attachments to a derrick, mast or deck, used on a vessel for the purposes of hoisting or lowering in connection with works.

Shipping and Port Control Ordinance, s2

2.5 **Lifting Gear (起重工具)**

It includes a chain, rope sling, canvas sling, net, tray, board, box, bull rope, snotter, can hook or other means of supporting cargo and attachments thereto including a ring, link, hook, plate, clamp, shackle, swivel, eyebolt, bridle, beam, spreader, rope and wire, used on a vessel in connection with works.

3. Responsibility

3.1 Competent Examiner

Shipping and Port Control (Works) Reg. s30 & s32

3.2 A competent examiner shall test and examine a lifting appliance or lifting gear in accordance with the procedure set out in Schedule 1 to the Regulation.

3.3 All examinations must be done or, wherever appropriate, witnessed by the competent examiner personally.

3.4 Competent examiners shall not restrict themselves to any one particular method of examination. A combination of different or complementary methods may be used to establish reliable results for drawing a conclusive report on the equipment or parts examined.

3.5 Competent examiners may hire professionals of other disciplines to assist them if they consider necessary. However, competent examiners shall exercise due diligence to ensure that the quality of the work done by the professionals they hire shall also be in compliance with the provisions or standards of this Code.

3.6 Competent examiners must keep themselves fully familiarized with the up-to-date legislation and technical codes or standards including the amendments thereto from time to time.

3.7 Competent examiners must enter in the appropriate mandatory forms which are specified by the Director under the Ordinance, the ultimate result of the examination and shall advise the owner as soon as practicable, the conditions found. In the circumstances where no specified forms are applicable, competent examiners may use a form agreed by the parties concerned to record the result of the examination. Such forms, wherever appropriate, together with the certificate of test and examination in respect of the lifting appliance or lifting gear, shall be entered in the register of lifting appliances and gear in accordance with section 39 of the Regulation.

4. Examination

Paragraphs 1.4 & 1.5 in this Code

4.1 "Examination", in respect of a lifting appliance or its accessory lifting gear, means a visual check or inspection, supplemented if necessary by other means such as a hammer test, carried out as carefully as the circumstances permit, in order to arrive at a reliable conclusion as to the safety of the parts being checked or inspected and if necessary for the purpose of the visual check or inspection by the dismantling of the parts of the lifting appliances or lifting gear.

4.1.1 Behavioural Aspect of an Examination

Without derogating paragraph 4.1.2 below, an examination is deemed to have been or to be carried out carefully when it is marked by attentive concern, diligence and effort to avoid errors and omissions.

4.1.1.1 “Attentive concern” relates to the details of the situation or the equipment or parts being examined. Due consideration and assessment are exercised during the examination in weighing the relative importance of the conditions found, followed by a traceable course of the action, which may include undertaking an interactive inquiry with the responsible person of the equipment concerned, making references to maker’s recommendations and specialized practical manuals. The time and effort taken in executing the series of actions would bear weight on quantifying the degree of diligence.

4.1.1.2 The measures on the quantum of errors and omissions shall be referenced to the reliable resources on standard or established practices in the respective professional disciplines. Examples of reliable resources are classification societies, standard issuing bodies such as British Standards Institution, Japan Standards Association, American Society of Mechanical Engineers, American Society of Testing of Materials, and International Maritime Organization, etc. Failure to avoid errors and omissions may result in damages to equipment, property, disruption of operation and personal injuries.

4.1.2 The Scope and Extent of an Examination

Without derogating paragraph 4.1.1 above, an examination is deemed to have been or to be carried out carefully when it is marked by the type or types of the following examination being employed to reveal, as far as reasonably practicable, the conditions of the parts or equipment examined. The type of examination may include the common methods outlined in the following paragraphs.

4.1.2.1 Visual Examination

A visual examination includes the checking and examination of the state of individual items of a lifting appliance or lifting gear. The purpose of visual examination is to identify any problems that are likely to affect the integrity of the lifting appliance or lifting gear. Components of the hoisting mechanism, controlling devices, brake linings, connecting hardware and joints of a pneumatic system should be visually examined.

4.1.2.2 Dimensional Examination

Dimensional Examination includes a check on the dimensional tolerances and distortions of certain critical components and configuration that may affect the stability, performance and function of the equipment or a part of the equipment. The purpose of this examination is to ensure that the dimensional tolerance and configuration alignment are within the limits as specified in the maker's technical documents or relevant standards.

4.1.2.3 Opening Up Examination

Opening Up Examination includes the checking of covered, concealed or encased components such as pulley blocks, gearboxes, clutch and pawl, brake linings in a braking system for assessing whether they are within acceptable limits. This is often done after abnormalities and irregularities are observed during other examination and test.

4.1.2.4 Non-destructive examination

When a visual examination is insufficient to draw a reliable conclusion on the safety of the parts or equipment being examined, non-destructive examination should be employed to further assess the integrity and reliability of the parts or equipment concerned. Common non-destructive examination (NDE) methods using testing equipment may include those recognized by the American Society for Nondestructive Testing, British Institute of Non-Destructive Testing, Chinese Mechanical Engineering Society, or similar organizations. However, an NDE is taken as supplementary to the visual examination.

4.1.2.5 Destructive Examination

Under certain circumstances, destructive examination may also be conducted to assess the condition of the parts or components in question. For example, drill test to examine the local thickness of a boom, Brinell or Micro Vickers test for assessing surface hardness, removing a sample from the parent body for assessment, etc. These methods should be conducted with the prior consent or consensus of the parties concerned.

5. Conclusion of Examination

5.1 In making the conclusion, the competent examiner may remark the type or types of examination employed in obtaining the results or drawing references to any relevant report in relation to the statutory forms. The relevant report may be appended to statutory forms.

5.2 Under special circumstances, the conclusive remarks may include conditional factors to be met with certain caveats as the competent examiner shall provide under moral duty or professional code of conduct.

6. Remark

This Code of Practice should be read in conjunction with the latest edition of the Codes of Practice issued in the same series, in particular, the Code "Designation of Competent Persons for Works on Vessels".

References

1. *British Standard BS 7121: Part 2:1991 Code of Practice for Safe Use of Cranes Part 2. Inspection, Testing and Examination,* published by British Standards Institution, U.K.

2. *Code for Lifting Appliances in a Marine Environment,* published by Lloyd's Register of Shipping.

3. *Code of Practice for Safe Use of Mobile Cranes and Tower Cranes,* 1998, issued by Labour Department, Hong Kong SAR.

4. *Guidance Notes on Inspection, Thorough Examination and Testing of Lifting Appliances and Lifting Gear*, 2001, published by Labour Department, Hong Kong SAR.

5. *Guide to Safety and Health in Dock Work*, 1988, published by International Labour Office, Geneva.

6. *Safety and health in ports, 2005,* published by International Labour Office, Geneva.

7. *OSHA Crane Safety Handbook*, 1995, published by J.J.Keller & Associates, Inc., U.S.A.

8. *Cambridge International Dictionary of English*, 1996, Cambridge University Press.

9. *Lifting Tackle Manual*, 1981, D.E. Dickie, Butterworths.

10. *Rules and Guidance for the Survey and Construction of Cargo Handling Appliances,* 1987, published by Nippon Kaiji Kyokai, Japan.

Appendix 1

List of Organizations specified by the Director of Marine

Under section 2(2) & (3) of the Shipping and Port Control (Works) Regulation

The prevailing full members of the International Association of Classification Societies who has official representative(s) or office(s) in Hong Kong are :-

a) American Bureau of Shipping

b) Bureau Veritas

c) China Classification Society

d) Det Norske Veritas

e) Germanischer Lloyds

f) Korean Register of Shipping

g) Lloyd's Register of Shipping

h) Nippon Kaiji Kyokai

i) RINA S.p.A

The updated list of classification societies providing the services of "competent examiner" is available at "Port Service" relating to marine industrial safety from the Marine Department's website at URL http://www.mardep.gov.hk

The list will be updated whenever there is a withdrawal or an addition to the ones enlisted.

Appendix 2

Marine Department Contacts

1. For reporting of shipboard industrial accidents and for enquiries on occupational safety and health matters relating to shipboard industrial operations including cargo handling, ship-repairing and marine construction during office hours -

   Marine Industrial Safety Section,
   Room 2315, Harbour Building,
   38 Pier Road,
   Central, Hong Kong.
   Tel.: 2852 4472, 2852 4477 Fax.: 2543 7209

2. For reporting of marine accidents during office hours -

   Marine Accident Investigation Section
   Room 2103, Harbour Building,
   38 Pier Road,
   Central, Hong Kong.
   Tel.: 2852 4511, 2852 4943 Fax.: 2543 0805

3. For enquiries on matters relating to dangerous goods carried by vessels during office hours -

   Dangerous Goods and Project Section
   Room 307, Harbour Building,
   38 Pier Road,
   Central, Hong Kong.
   Tel.: 2852 3085, 2852 4384 Fax.: 2815 8596

4. For reporting of marine and shipboard industrial accidents during and outside office hours -

   Vessel Traffic Centre
   Tel.: 2233 7801 Fax.: 2858 6646
   V.H.F.: Channel 12, 14, 67

5. For alerting the search and rescue authority (24 hours manned) -

   Hong Kong Maritime Rescue Co-ordination Centre (HK MRCC)
   Tel.: 2233 7999 Fax.: 2541 7714

6. Marine Department Web-site: http://www.mardep.gov.hk