

PROVISIONAL LOCAL VESSELS ADVISORY COMMITTEE

Draft Code of Practice for Competent Examiners on the Examination of Lifting Appliances and Lifting Gear

Purpose

1. This paper aims at providing a practical guide to the local marine industry especially the competent examiners on how to ensure the examination to be carried out by competent examiners under the Regulation has been or is carried out carefully. Ship owners, ship captains or coxswain, person in charge of works, stevedores contractor, work supervisors, safety personnel, employers and independent competent examiners should read this Code of Practice.

Background

2. The extant law on the control of examination of shipboard lifting appliance and lifting gear is the Shipping and Port Control Ordinance (SAPCO), Cap 313. When the Merchant Shipping (Local Vessels) Ordinance, Cap 548, comes into force, local vessels will be governed by the Merchant Shipping (Local Vessels) Ordinance. The non-local vessels will remain within the control of the SAPCO. Chinese coastal vessels arriving Hong Kong, upon obtaining the permit issued by the Director of Marine, will fall under the ambit of the Merchant Shipping (Local Vessels) Ordinance.
3. This Code of Practice is applicable to both local vessels and non-local vessels fitted with lifting appliance and lifting gear. The approval and issue of this Code of Practice rest with the Director of Marine pursuant to Section 45A of the Merchant Shipping (Local Vessels) Ordinance, Cap 548 and Section 44A of the Shipping and Port Control Ordinance, Cap 313.
4. Upon completion of the consultation and subsequent amendments, the Marine Department will publish this Code along with the related Codes of Practice.

Code of Practice for Competent Examiners on the examination of lifting appliance and lifting gear

5. This Code outlines the basic aspects of the examination carried out by a competent examiner. The basic aspects include a behavioural element and the scope and extent of the examination covered. They are the fundamental elements in evaluating if an examination has been or is carried out carefully.
6. The Code also makes recommendations on information to be included in the conclusion of an examination and the remark column of statutory forms.

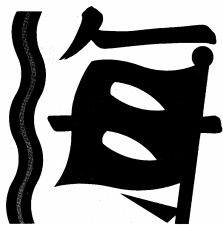
Advice sought

7. The industry at large has not been consulted. Members are welcome to comment on or endorse the Code.

*Marine Industrial Safety Section
Marine Department
Hong Kong SAR Government
November 2004*

DRAFT CODE OF PRACTICE *for*

**Competent Examiners on the examination of Lifting
Appliances and Lifting Gear**



**Marine Industrial Safety Section
Marine Department, HKSAR
October 2004**

Record on Updating and Amendments

This Code of Practice is issued under section 44A of the Shipping and Port Control Ordinance through the Gazette Notice. 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 changes in this Code.

[for consultation purpose, texts subject to impending changes are underlined]

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

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Preamble

Lifting appliances and lifting gear, in particular derrick cranes on the local dumb steel lighters, 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 Regulation has been or is carried out carefully.

This approved code is issued by the Director of Marine under Section 44A(1) of the Shipping and Port Control Ordinance (the "Ordinance"), Cap. 313. It is important to note that compliance with this Code of Practice does not, of itself, confer immunity from legal obligations in Hong Kong. Competent examiners are also 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 codes relates,
- then the 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.

Footnote: The provisions of the Shipping and Port Control Ordinance, Cap.313, and the Shipping and Port Control (Works) Regulations which are quoted in this Code of Practice will be replaced by the relevant provisions of the Merchant Shipping (Local Vessels) Ordinance, Cap.548, and the Merchant Shipping (Local Vessels) (Works) Regulation respectively after the Ordinance (Cap.548) comes into force.

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 embrace 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 Regulations 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 include “inspection” and “thorough examination” made under the Shipping and Port Control Ordinance, Cap.313, the Shipping and Port Control (Works) Regulations and this Code will be replaced by relevant provisions in the Merchant Shipping (Local Vessels) Ordinance, Cap 548, and its sub-legislation when it comes into force.

2. Interpretation

<i>Shipping and Port Control (Works) Regulations Reg.2</i>	2.1 Competent examiner (合資格檢驗員)	<u>A competent examiner means a person who is a registered professional engineer registered under the Engineers Registration Ordinance (Cap.409) within a discipline specified in Schedule 3 of the Shipping and Port Control (Works) Regulations, or [authorized under section 7 of the Merchant Shipping (Local Vessels) Ordinance for the purposes of the Regulation]. **</u>
<i>Merchant Shipping (Local Vessels) Ordinance Section 7</i>		<u>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 these regulations.</u>
<i>Shipping and Port Control (Works) Regulations Schedule 3</i>		<u>As at the date of publication of this Code of Practice, mechanical, and marine and naval architecture are the disciplines specified in Schedule 3 of Shipping and Port Control (Works) Regulations.</u>
<i>Shipping and Port Control Ordinance Section 36</i>	2.3 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 - <ul style="list-style-type: none">(a) a hoist block running on a fixed rail or wire;(b) a stacker or conveyor 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.
** Department of Justice to be consulted		
	2.4 Derrick crane (人字吊臂起重機)	It means 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. Currently most of the local designed derricks installed on dumb steel lighters are derrick cranes.

A figure of a typical derrick crane installed on a local dumb steel lighter is shown on the cover page of this Code of Practice.

- Shipping and Port Control Ordinance Section 36*
- 2.5 **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.
- 2.6 **Lifting Gear**
(起重工具)
- Section 36*
- It includes a chain sling, rope sling, canvas sling, net, tray, board, box, bull rope, snorter, 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

3.1.1 Competent Examiner

3.1.2 A competent examiner shall test and examine a lifting appliance or lifting gear in accordance with the procedure set out in Schedule 1 of the Shipping and Port Control (Works) Regulations.

*Shipping and Port
Control (Works)
Regulations
Reg.20, 23(4) &
25A(1)*

3.1.3 All examinations must be done or witnessed by the competent examiner personally.

Reg.17(b)

3.1.4 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.

3.1.5 Competent examiners may hire professionals of other disciplines to assist them if they consider necessary. However, competent examiners shall exercise due diligent to ensure the quality of the work done by the professionals they hire shall also meet the intention of this Code.

3.1.6 Competent examiners must keep themselves fully familiarized with the current legislation and technical codes or standards including any subsequent amendments.

3.1.7 Competent examiners must enter in the appropriate mandatory forms and other forms, as the case may be and so specified by the parties concerned, the ultimate result of the examination and shall advise the owner the conditions found.

4. Examination

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 conditions 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, by the dismantling of the parts of the lifting appliances or lifting gear.

4.1.1 Behavioural Aspect of an Examination

Without derogating 4.1.2, 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 specialised 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 Standard Institution, Japan Standards Association, American Society of Mechanical Engineers, American Society of Testing of Materials, and International Maritime Organisation, 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 4.1.1, 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 Non-destructive 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, “Strength Calculations, Test and Examination of Derrick Cranes on Local Vessels” and “Designation of Competent Persons”.

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 Standard 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. *OSHA Crane Safety Handbook*, 1995, published by J.J.Keller & Associates, Inc., U.S.A.
7. *Cambridge International Dictionary of English*, 1996, Cambridge University Press.
8. *Lifting Tackle Manual*, 1981, D.E. Dickie, Butterworths.
9. *Rules and Guidance for the Survey and Construction of Cargo Handling Appliances*, 1987, published by Nippon Kaiji Kyokai, Japan.

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 -

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