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The following Guidelines come into force on 1 December 2010.

Alterations to the preceding Edition are marked by beams at the text margin.

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Published by: Germanischer Lloyd SE, Hamburg
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Section 1

Guidelines for the Condition Assessment Program

A. Preamble
1. These Guidelines define the conditions under which a Condition Assessment Program will be performed.

2. The Condition Assessment Program is an expertise about the condition of a vessel independent from the system of classification. The GL Rules for Classification and Surveys (1-0) are not applicable except for references made in these Guidelines.

3. For representatives of GL the latest Instructions with reference to the Condition Assessment Program are to be observed.

B. Aim

A Condition Assessment Program is aimed at determining and assessing the actual technical condition of hull and/or machinery, electrical installation and cargo related systems at a given point of time by surveys and investigations. Under certain conditions prospects on structural risks will be given.

C. Prerequisites

1. The vessel shall be built under supervision of GL or another IACS society. Each individual Condition Assessment Program will be carried out by GL Head Office.

2. The Condition Assessment Program including repairs and remedies is to be completed within a 6 month period.

3. The Owner shall provide the necessary facilities for safe and effective surveys. All parts of the hull and/or machinery, electrical installations and cargo related systems, if subject to the Condition Assessment Program, shall be accessible, clean and prepared to perform the survey in a safe and practical way as agreed upon by GL Head Office and the attending Surveyor.

D. Scope of the Program

The detailed scope of a Condition Assessment Program will be defined by GL Head Office for each vessel on an individual basis considering its type, age and special features. Depending on requested assessment the survey scope may include:

1. Hull

2. Machinery and Electrical Systems, Cargo Handling Systems

3. Full Scope including Hull, Machinery and Electrical Systems, Cargo Handling Systems

Depending upon the results the scope may be adapted during the performance of the Condition Assessment Program.

E. Elements of the Program

Elements of Condition Assessment Program for hull are divided into two sections:

- the Condition Assessment Survey
- the Condition Assessment Analysis

Both result in the:

- Summary Assessment

contained in the final Certificate of Condition Assessment Program.

F. Condition Assessment Survey

1. The survey covers the whole vessel with a view to a complete assessment of damages, deficiencies, maintenance and wear.

2. The inspections of a Condition Assessment Survey generally consist of:

2.1 General
- perusal of the Class and Trading Certificates and associated documents
- perusal of the damage history
- perusal of the cargo history
- perusal of the trading history
- perusal of maintenance records

2.2 Hull
- survey/close-up survey of all ballast water tanks
- survey/close-up survey of all cargo holds or cargo tanks
- survey of main deck, hatch coamings, hatch covers
- side shell, stem and stern
- survey of all other areas, rooms and spaces forming part of the hull structure
- survey of accommodation
2.2.1 The inspection of hull structures will be especially focused on elements having been exposed to high - mainly dynamical - loads and to corrosion and wear due to sea water, cargo or cargo operations.

2.2.2 The type and condition of the corrosion prevention system will be considered for the individual structures depending on the proneness to corrosion or certain service conditions.

2.3 Machinery, electrical installations and cargo related systems
- sea trial with performance control of main engine pressure indication
- vibration measurements on vital rotating units as far as deemed necessary
- perusal of the maintenance records
- survey of the systems and components in the engine room and related spaces
- running tests
- measurements of wear down figures
- survey and tests of the cargo related systems (on tankers)
- survey and tests of the safety systems, automation and remote control systems
- internal survey of selected components
- insulation resistance test
- oil analyses

G. Condition Assessment Analysis of the Hull Structure

The Condition Assessment Analysis is a mandatory element of the Condition Assessment Program. Its primary aim is to verify the result of the Condition Assessment Survey by analysing the grade of remaining strength of the hull structure.

Depending on the type, application, size and condition of a ship the following is applicable.

1. For vessels other than Bulk Carriers below 20,000 tdw applying for a rating "3" and for vessels below 3,000 tdw in general, it is assumed that the approved as-built scantlings are adequate for the present purpose without necessitating a comparison to the latest edition of the GL Rules for Classification and Construction.

The assessment of the thickness measurements is carried out taking the as-built scantlings of the new building condition as the reference for original thickness. In general the corrosion allowance is taken from the latest edition of the GL Rules for Classification and Construction.

Under special consideration the latest Rules for the corrosion allowance of the building IACS classification society will be accepted.

In special cases, the corrosion allowance can be taken from the rules applicable at the time of construction by recalculation of the structure in question.

In general a fatigue analysis will not be carried out.

Depending on the survey results, an individual analysis of the structure in question shall be performed.

2. For vessels other than Bulk Carriers from 3,000 tdw upwards applying for a rating "2" or above and for Bulk Carriers in general, the assessment of the thickness measurements of structural elements is carried out on the basis of the required scantlings, the corrosion allowances shown in the respective Rating Tables and the latest edition of the GL Rules for Classification and Construction.

Main structural elements will be analysed by the ultimate strength method and for fatigue by cyclic loads.

A standard of safety concerning structural risk is considered for longitudinal hull structural members in terms of remaining lifetime assumptions.

3. For all vessels for which a Condition Assessment Program is requested aiming at determining a reference age for the ship's standard of safety concerning structural risk, exceeding a five year period ("Assessment of Extended Life Time"), an assessment of the thickness measurements of structural elements is carried out on the basis of the required scantlings, including the corrosion allowances of the latest edition of the GL Rules for Classification and Construction.

Main structural elements will be analysed by the ultimate strength method. A fatigue analysis is to be performed for the structural elements based on the number of load cycles for the envisaged lifetime.

4. Computer program

Calculations for the structural assessment and the fatigue analysis will be carried out by the GL computer program POSEIDON applying its latest edition.

H. Assessment

1. The assessment of individual items and final Summary Assessment are carried out according to the criteria shown in Table 1.1 for all vessels other than Bulk Carriers and Table 1.2 for Bulk Carriers.
<table>
<thead>
<tr>
<th>Rating</th>
<th>Condition Assessment Survey</th>
<th>Condition Assessment Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Hull</strong>(^1)</td>
<td><strong>Machinery and Electrical Installation</strong>(^2)</td>
</tr>
<tr>
<td></td>
<td>Structure with no evidence of wastage, wear and tear.</td>
<td>Components and systems found with no deficiencies affecting the safe operation and/or normal performance.</td>
</tr>
<tr>
<td></td>
<td>Coating system in at least “good” condition.</td>
<td>Maintenance and documentation found in very good order. No maintenance or repair considered necessary.</td>
</tr>
<tr>
<td>1</td>
<td><strong>Very good condition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Structure with negligible deficiencies not requiring correction or repair.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coating system in at least “fair” condition.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Good condition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Structure with deficiencies, affecting neither the minimum strength nor the operability and do not require immediate corrective action.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coating system in “poor” condition but supplemented by anodes in “good” condition.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>Class condition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Structure with deficiencies which may affect the ship’s potential to remain in class.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coating system in “poor” condition and/or corrosion protection system in “fair” or “poor” condition.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Poor condition</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Components and systems found with deficiencies affecting the safe operation and/or normal performance.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintenance and documentation found to be poor. Maintenance and repair required to reinstate serviceability.</td>
<td></td>
</tr>
</tbody>
</table>

1 If both criteria for structure and corrosion prevention system are not matching one rating level, the structural condition is decisive.
2 If both criteria for condition and maintenance are not matching one rating level, the lower deficiency is decisive.
Table 1.2 Rating system (Bulk Carriers)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Condition Assessment Survey</th>
<th>Condition Assessment Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Hull 1</td>
<td>Machinery and Electrical</td>
</tr>
<tr>
<td></td>
<td>Structure with no evidence of wastage, wear and tear.</td>
<td>Installation 2</td>
</tr>
<tr>
<td></td>
<td>Coating system in at least “good” condition.</td>
<td>Components and systems found with no deficiencies affecting the safe operation and/or normal performance.</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Rightship CAP2/3</td>
<td>Components and systems found with minor deficiencies not affecting the safe operation and/or normal performance.</td>
</tr>
<tr>
<td></td>
<td>Structure with negligible deficiencies not requiring correction or repair.</td>
<td>Maintenance and documentation found to be good. No immediate maintenance or repair considered necessary.</td>
</tr>
<tr>
<td></td>
<td>Coating system in at least “good” condition, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coating system in at least “fair” condition but supplemented by anodes in “good” condition.</td>
<td></td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Class condition</td>
<td>Components and systems found with deficiencies but not affecting the safe operation and/or normal performance.</td>
</tr>
<tr>
<td></td>
<td>Structure with deficiencies, affecting neither the minimum strength nor the operability and do not require immediate corrective action.</td>
<td>Maintenance and documentation considered to be satisfactory. No immediate maintenance or repair considered necessary.</td>
</tr>
<tr>
<td></td>
<td>Coating system in “poor” condition but supplemented by anodes in “good” condition.</td>
<td></td>
</tr>
<tr>
<td><strong>4</strong></td>
<td>Poor condition</td>
<td>Components and systems found with deficiencies affecting the safe operation and/or normal performance.</td>
</tr>
<tr>
<td></td>
<td>Structure with deficiencies which may affect the ship’s potential to remain in class.</td>
<td>Documentation and maintenance found to be poor. Maintenance and repair required to reinstate serviceability.</td>
</tr>
<tr>
<td></td>
<td>Coating system in “poor” condition and/or corrosion protection system in “fair” or “poor” condition.</td>
<td></td>
</tr>
</tbody>
</table>

1. If both criteria for structure and corrosion prevention system are not matching one rating level, the structural condition is decisive.

2. If both criteria for condition and maintenance are not matching one rating level, the lower deficiency is decisive.
1.1 Hull

During the survey, the hull structure is assessed by the grade of wastage, wear and tear based on the vessel's new building condition. Any deficiency is considered with respect to the impairment of the structural integrity. The condition of the corrosion prevention system is also to be rated in comparison to its obvious original application.

1.2 Machinery, electrical installations and cargo related systems

The assessment of machinery, electrical installations and cargo related systems is based on visual inspection, running tests, maintenance records and special observations with regard to the possible effect any presumed deficiency may cause to the safe operation of the vessel.

1.3 Condition Assessment Analysis

The results of the Condition Assessment Analysis are assessed by the remaining rate of the required margin with respect to thickness of structures and/or their margin of fatigue strength.

1.4 Reservation

Any relevant deviations are assessed - irrespective of the ship's class - applying the requirements as per GL Rules for Classification and Construction.

I. Results and Conclusions

1. Report

1.1 The results of the Condition Assessment Survey and the Condition Assessment Analysis are summarised in a report. This report describes in line with the agreed scope of the Condition Assessment Program according to D.

1.1.1 Hull

- the survey conditions, results and the rating for individual structures and components
- assessment of thickness measurements
- a photo documentation if appropriate
- results of the Condition Assessment Analysis

1.1.2 Machinery, electrical systems, cargo handling systems and equipment

- results of the performance calculation of main engine during sea trial
- results of the vibration measurement as applicable
- valuation of taken measurements on rotating units
- findings of all tests and safety checks including automation and remote control systems
- extensive photographic documentation reflecting the average condition

1.2 On special request, received before the commencement of the survey, a list of proposals for appropriate measures and/or modifications intended to improve the actual technical condition will be attached.

2. Certificate

2.1 On completion of the Condition Assessment Program a "Certificate of Condition Assessment Program" depending on the agreed scope according to D. will be issued containing

- the vessel’s identification data
- the place and period of survey
- a summary assessment on hull and/or machinery and electrical installation
- comments or exceptions
- a reference age for the vessels standard of safety concerning structural risk and a prospective time derived for continuing service (only if G. 3. is applied)

2.2 The date of issue shall correspond to the date of release by Head Office.

2.3 The certificate will be issued without a defined period of validity.

J. Determination of Repair Measures required

All components not meeting the requirements are to be replaced by components according to the Society’s Rules. Where necessary, components are also to be renewed which cannot be proved to be of adequate residual fatigue strength due to advanced previous damages. All work becoming due on account of repair measures is to be supervised by GL Surveyors.

K. Impairment of Certificates

If rating "4" has to be applied for ships being classified by GL, the respective items may influence the maintenance of class and validity of trading certificates issued by GL.

L. Obligation

If during a Condition Assessment Program a condition is established affecting the safety of life, the integrity of structures and equipment, or which will impair the environment, GL reserves the right to take appropriate averting action. Information might be passed onto responsible authorities or societies.