Identification code:
TCVT W2-01E/ 08-209

CERTIFICATION SCHEME

(not compulsory by law, but a voluntary certification scheme)

for the
TCVT Certificate of Periodic Approval
E&T of Offshore Cranes

Drawn up by:
Study group 2 Periodic Inspection of Offshore Cranes date 17-09-2008

Approved by:
CCvD-VT date 26-11-2008

Adopted by:
Executive Board, Stichting TCVT, date 09-12-2008

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1. INTRODUCTION

1.1 General

For the purposes of supervising certification, the Foundation for the Supervision of Certification of Vertical Transport ("Stichting Toezicht Certificatie Verticaal Transport - Stichting TCVT") was created by the parties concerned. The Foundation supports the Central Board of Experts in Vertical Transport ("Centraal College van Deskundigen Verticaal Transport - CCvD-VT"), and administers all the certification schemes in the area of Vertical Transport. Responsibility for supervising the content of the certification schemes rests with the CCvD-VT. Operational supervision of the certification schemes rests with the Dutch accreditation council ("RvA"). Study groups have been created to set up and maintain the certification schemes. These study groups have an executive and advisory function in respect of the CCvD-VT.

The Central Board of Experts in Vertical Transport authorises the various certification schemes in the area of Vertical Transport and approves them for use by the accredited and, in the case of compulsory certification, appointed inspection bodies.

More general information can be found on the TCVT website at www.tcvt.nl.

1.2 Vertical Transport Offshore

A European standard has been produced for the offshore crane industry in the countries around the North Sea, namely EN 13852. Its purpose is to create a harmonised standard for General purpose offshore cranes, including the essential safety requirements arising from the Machinery Directive and the associated EFTA rules. This European standard refers to the various European standards and ISO standards on the use, operating, maintenance and inspection of cranes in the operational phase. One of these standards is ISO 9927-1 Cranes – Inspections.

When drawing up this certification scheme every effort has been made to keep as closely as possible to the above-mentioned European Standard EN 13852, so that ultimately as integrated as possible a care system is available for offshore hoisting in the Dutch Offshore industry.

1.3 Certification scheme for the E&T of offshore cranes

This certification scheme applies to cranes, situated on fixed offshore mining installations, on the Dutch continental shelf, and does not apply to cranes on movable offshore installations.

In consultation with the National Mines Inspectorate and the sector organisation NOGEPA a voluntary certification system has been chosen. Further to this it has been decided to draw up the certification scheme W2-01 Offshore cranes for inspection agencies that are accredited in conformance with NEN-EN-ISO/IEC 17020 type A or type B.

1.4 Miscellaneous

In talks with the National Mines Inspectorate ("SODM") it has been decided that the certifying and/or assessing of hoisting gear does not form part of this scheme. For the certifying and/or assessing of hoisting and lifting gear used in the offshore industry, an inspection scheme is being drawn up in Study group 1: Hoisting and lifting gear.

The load on the crane, usually containers, is dealt with in EN12979.

The study group on offshore cranes has decided not to take part in drawing up a certification scheme for the professional competence of offshore crane operators. In consultation with NOGEPA, the IADC and SODM it has been decided that the current training module for offshore crane operators prepared by NOGEPA is sufficient. The same applies also to ISO 12480-1, Cranes – Safe Use, to which the European Standard EN 13852 refers.

The study group on offshore cranes has not produced any guidelines for the issuing and any withdrawal of the Certificate of Approval. The study group is of the opinion that the procedures produced by the Stichting TCVT can be used. The study group has decided that a new inspection must take place at most 12 months after the previous inspection, with a possible extension of 2 months. This is provided that this is necessary for operational reasons and that the safe use of the hoisting crane allows this. As well as the safety aspect, the study group has also given consideration to the environment as far as any shortcomings are concerned.

2. DEFINITIONS AND ABBREVIATIONS

CCvD-VT	:	Centraal College van Deskundige Verticaal Transport (Central Board of Experts in Vertical Transport).
EFTA	:	European Free Trade Association.
Accredited and authorised inspection body	:	A body that carries out the assessment of the crane in accordance with the certification scheme W2-01 and which is accredited for this by the Accreditation Council on the basis of NEN-EN-ISO/IEC 17020 type A & type B.
Hoisting gear	:	Equipment positioned between the load and the crane hook to hoist this load.
IADC	:	International Association of Drilling Contractors.
ISO	:	International Organization for Standardization.
Classification organisation	:	One of the following classification agencies: American Bureau of Shipping, Bureau Veritas, Det Norske Veritas, Germanische Lloyd, Lloyd's Register.
Crane driver (crane operator)	:	A demonstrably qualified person who operates the crane for the purpose of moving materials and persons from and to supply boats and moving materials on the offshore location itself. The crane driver is also competent to perform certain maintenance work on the crane.
NOGEPA	:	Nederlandse Olie en Gas Exploratie en Productie Associatie (Dutch Oil and Gas Exploration and Production Association).
E&T	:	Abbreviation for Examination and Testing. The name of the inspection programme for a crane to establish that the crane meets the statutory provisions and/or the various international/national standards. In general, the examination consists of a visual inspection and verification of the functions and the effectiveness of these functions. Normally it is not necessary for the parts to be dismantled for further examination. Testing is understood to be a load test with the crane with a load equal to the hoisting load, and the safety and limit devices are also tested. This is carried out in conformance with this certification scheme W2-01.
Pedestal (or Base)	:	A bearing substructure on which the top structure of the offshore crane is secured.
Offshore crane	:	In the context of this certification system this means a general purpose offshore crane. This is a slewing crane permanently located on a fixed offshore mining installation, intended primarily for moving materials from and to supply boats. If the bottom piece of the crane is welded to the offshore structure, the first horizontal weld under the flange is regarded as the border. If the bottom piece of the crane is bolted to the offshore structure, the bottom-most flange (including the bolts) is seen as being part of the offshore crane.

E&T client	:	The legal entity who instructs the certified inspection body to carry out the Periodic E&T of an offshore crane. In accordance with NEN-EN-ISO/IEC 17020 type B, this inspection body may form part of the organisation of the client. In many cases the client is in charge of the maintenance of the offshore crane.
SodM	:	Staatstoezicht op de Mijnen (State Supervision of Mines). All activities in connection with the exploitattion and production of minerals are supervised by State Supervision of Mines, a division of the Ministry of Economic Affairs. State Supervision of Mines is responsible for the supervision of the Mining Legislation and also ensures that the mining industry complies with the Working Conditions, Working Times, Environmental, Food & Drugs, Water Supply and Nuclear Energy Legislation.
Arbowet	:	Working Conditions Act
SZW		Ministry of Social Affairs and Employment.
TCVT		Stichting Toezicht Certificatie Verticaal Transport (Foundation for the Supervision of Certification of Vertical Transport).
Shortcoming with no risk to safety or the environment	:	A shortcoming that does not entail any risk to safety or the environment is understood to be a shortcoming of an administrative nature or minor repairs
Shortcoming with no direct risk to safety or the environment	:	A shortcoming that does not entail any direct risk to safety or the environment is understood to be a shortcoming that will not result in a direct risk to safety or the environment in the near future.
Shortcoming with a direct risk to safety	:	A direct risk to persons and/or objects is considered to be present in all cases: If there is a direct risk of parts of the hoisting crane giving way or the load coming down unintentionally.
Fixed mining installation	:	A non-movable facility positioned on or above the continental shelf for the purpose of carrying out exploratory survey work or extracting minerals and which is registered in the Netherlands.

3. CERTIFICATION REGULATIONS

3.1 Purpose

These regulations describe the general procedures followed by the inspection body when carrying out the Periodic E&T of Offshore Cranes for the TCVT Certificate of Approval, in combination with the attaching of the TCVT Approval Sticker to the crane.

3.2 Request and dealing with the request

In most situations the owner of the crane or the contracted maintenance body is also the E&T client. In the text below we refer to the client. The consideration here is that in many cases the client looks after the maintenance of the crane.

3.2.1 Request

The client makes a request to the inspection body for a given crane to be examined and tested. Client and the inspection body agree on the inspection date.

3.2.2 Carrying out and reporting the E&T

The crane is to be examined and tested on date (dd-mm-yyyy):

- The crane and a qualified crane-driver will be made available by the client
- A check on whether the client has met the requirements for the E&T of the crane to run smoothly, taking into account:
    - the assessment form;
    - the testing programme;
    - the instructions for the assessment form;
    - the hoisting tables provided.
- The completed assessment form is given to the client.
- The findings are noted in the crane log (with a reference to the assessment form).
- The certificate is issued depending on the shortcomings that have been found.
- A copy of the complete assessment is added to the crane log. A copy of the completed assessment form is sent to the inspection body for archiving.

3.3 Issuing the certificate

Under certain conditions, the inspector is authorised to award the TCVT Certificate of Approval and in combination with this, in accordance with the Rules and Regulations on the Use of the TCVT Logo, to attach the TCVT Approval Sticker to the crane. These conditions are to do with the seriousness of the shortcomings that have been found. A distinction is made between the shortcomings as detailed below.

3.3.1 No shortcomings:

The TCVT Certificate of Approval and the TCVT Approval Sticker are issued, dated dd-mm-yyyy
Shortcomings with no risk to safety and the environment

- The shortcomings are discussed with the client;
- The TCVT Certificate of Approval and the TCVT Approval Sticker are issued, dated dd-mm-yyyy;
- Correction/Repair by the client;
- Notes are made in the crane log..

3.3.2 Shortcoming(s) with no direct risk to safety and the environment:

- The shortcomings are discussed with the client;
- The crane is repaired;
- Notes are made in the crane log;
- The measures taken by the client are reported to the inspection body;
- The TCVT Certificate of Approval and the TCVT Approval Sticker are issued, dated dd-mm-yyyy.

3.3.3 Shortcoming(s) with a direct risk to safety

- The shortcomings will be discussed with the Offshore Installation Manager (HMI);
- The crane is taken out of use;
- The crane is repaired.
- Notes are made in the crane log;
- Sign-off by the client (the crane is ready);
- The procedure is followed after a check on date dd-mm-yyyy.

The follow-up procedure may be followed in accordance with 3.3.1, 3.3.2, 3.3.3 or 3.3.4.

Note:
When the TCVT Certificate of Approval is issued, the TCVT Approval Sticker should be used in accordance with the Rules and Regulations on the Use of the TCVT Logo.

3.4 Dealing with shortcomings

3.4.1 No or few shortcomings with no risk to safety and the environment

If there are no shortcomings or they do not constitute a risk to safety and the environment, the inspection body gives the client the signed TCVT Certificate of Approval in combination with the TCVT Approval Sticker in accordance with the Rules and Regulations on the Use of the TCVT Logo.

The client is obliged to rectify the shortcomings and to note this in the crane log.

3.4.2 Dealing with shortcomings with no direct risk to safety and the environment

If shortcomings do not constitute any direct risk to safety and the environment, the inspection body asks the client to rectify the shortcomings in question as soon as possible and to send a written report on this to the inspection body. The client also details in the crane log the repair work that has been carried out.

After receiving the report from the client and the positive assessment of the repair work that has been carried out, the inspection body gives the client the signed TCVT Certificate of Approval in combination with the TCVT Approval Sticker in accordance with the Rules and Regulations on the Use of the TCVT Logo.

Note.
Where necessary, a further inspection is carried out (for example in the case of welding repairs and other cases). Further requirements and tests to be specified by the inspection body.

3.4.3 Dealing with shortcomings with a direct risk to safety

If shortcomings constitute a direct risk to safety, immediate measures have to be taken on the crane. Because of the crane owner's legal obligations (among other things Section 7 of the Working Conditions Decree), the inspection body informs the owner in writing that for safety reasons the crane should not be used and therefore must be taken out of use. The inspection body states that the owner is obliged to take at once the direct measures that are needed to rectify the shortcomings. The body asks the client to make a report to the body in writing about the measures that are being taken, for the purposes of re-inspection. After receiving the report from the client, the inspection body informs the

client whether re-inspection is required and plans re-inspection in corporation with the client. If the repairs are considered to be satisfactory, the inspection body gives the client the signed TCVT Certificate of Approval, in combination with the TCVT Approval Sticker in accordance with the Rules and Regulations on the Use of the TCVT Logo.

Note:

The inspection body must demand that measures are taken immediately in order to rectify any shortcoming that has been found if, in the opinion of the certification body, when the hoisting crane is used this shortcoming may result in a direct risk to persons and/or objects. A verbal notification is noted in the inspection report.
A direct risk to persons and/or objects is considered to be present in any event:

- if there is a direct risk of parts of the hoisting crane giving way or the load coming down unintentionally.

4. ARRANGEMENTS BETWEEN THE CLIENT AND THE INSPECTION BODY

Below are details of what arrangements as a minimum have to be made by the inspection body with the owner/client.

4.1 The information needed

Carrying out the examining and testing:

Examining and testing:
- Date
- Start time/finish time
- Place of examining and testing
- Details about the offshore crane client

The offshore crane that is to be examined:

Details about the crane:
- Make: ……
- Type: ……
- Serial number: ……

Note:
These details are also given on the TCVT Certificate of Approval.

Apparatus/items to be provided by the client:

- The apparatus needed:
  - the offshore crane, in good working order, that is to be examined and tested;
  - test weights required for the test;
- A qualified crane operator
- Documents:
  - statement of Conformity (or inspection report when taken into use);
  - hoisting tables;
  - the crane's operating and maintenance manuals;
  - the maintenance management system (as example: grease sample, NEN 3140, Atex).
- Crane log:
  - certificates/statements of conformity for cables/blocks;
  - certificates/statements of conformity for the auxiliary equipment used

Procedure:

Carry out the examining and testing in accordance with:
- the assessment form (see Annex A);
- the testing programme (see Annex B);
- the instructions for the assessment form (see Annex C).

4.2 Explanation

The owner/client is informed of the findings in writing immediately after the examining and the testing. The findings, summarised in the TCVT Certificate of Approval, are also recorded in the crane log / assessment form.

The inspector is authorised to issue the TCVT Certificate of Approval on behalf of the inspection body, under the conditions referred to in subsection 3.3. The TCVT Approval Sticker is applied by the inspector at a place that can be seen by third parties.

In the situations referred to in subsection 3.3.1 and subsection 3.3.2, the TCVT Certificate of Approval in combination with the TCVT Approval Sticker is issued on the spot.

In the situation referred to in subsection 3.3.3, the TCVT Certificate of Approval in combination with the TCVT Approval Sticker is not issued straight away. After it has been established administratively that the requirements are satisfied, then the TCVT Certificate of Approval in combination with the TCVT Approval Sticker is issued. It is deemed that the owner/client will file the TCVT Certificate of Approval in or near the crane log and will apply the TCVT Approval Sticker at the place prescribed.

In the situation referred to in subsection 3.3.4, the TCVT Certificate of Approval in combination with the TCVT Approval Sticker is not issued straight away. After it has been established on the spot that the requirements are satisfied, then the TCVT Certificate of Approval in combination with the TCVT Approval Sticker is issued on the spot.

Note:

The issuing of the TCVT Certificate of Approval in combination with the applying of the TCVT Quality Mark on the machine takes place in accordance with the Rules and Regulations on the Use of the TCVT Logo (VT-0B5).

4.3 Complaints procedure

In accordance with NEN-EN-ISO/IEC 17020 the inspection bodies have procedures for dealing with complaints.

4.4 Costs

As well as the costs for carrying out the E&T in accordance with the certification scheme W2-01, which are invoiced to the client by the inspection body, an additional TCVT payment is charged in respect of the TCVT Certificate of Approval and the TCVT Approval Sticker. For the amount of this payment, see the list of fees, which can be seen on the website www.tctvt.nl.

5. LEGAL FRAMEWORK

5.1 Definition of a compulsory and a voluntary scheme

5.1.1 Legal provisions
In accordance with Article 7.19 of the Working Conditions Decree, hoisting cranes which have a working load of 2 tons or more must be examined periodically (at least once a year) to ensure that they are in good working condition.
This examination must involve suitable testing of the crane and its safety and limit devices.

ISO 9927-1 states that the crane must be checked by the crane operator before use. This check is a visual inspection for obvious defects along with functional testing of the safety systems. The crane must be inspected at least once a year by an experienced engineer.

Every 5 years an examination of the offshore crane must be carried out in the presence of an independent and specialist consulting company.
T
5.1.2 Compulsory scheme
In the case of a compulsory scheme, the criteria that a crane has to satisfy are set out in statutory standards.
A compulsory scheme can therefore be defined as follows:
A compulsory scheme is a scheme that has been set up by the industry based on statutory standards.

5.1.3 Voluntary scheme
And now a voluntary scheme:
A voluntary scheme is a scheme that has been set up by the industry based on general legal provisions.
The latter is the case for offshore cranes, so for offshore cranes we have a voluntary certification system.

5.2 Situation under the voluntary certification system

The owner of the offshore crane is responsible for ensuring that on a regular basis periodic routine checks are carried out on the offshore crane, depending on what the crane is intended to be used for. Annex A (periodic checks) of ISO 12480-1, Cranes - Safe Use should be taken as a guide for this. These periodic checks will normally be carried out by the crane operator or by a demonstrably similarly competent maintenance specialist. The results and deviations found in these periodic routine checks must be reported in the maintenance management system or in the crane's log so that it is available to be inspected by the certified inspection body.
Annex A of ISO 12480-1 gives guidelines for daily checks, weekly checks and checks on cranes that are not used regularly.

The owner of the offshore crane is also responsible for setting up a preventive maintenance programme on the basis of the operational use and on the basis of the periodic tasks specified by the manufacturer. ISO 12482-1 Cranes – Conditioning monitoring and ISO 12478-1 Cranes – maintenance manual can be used as a guide provided that NEN 3140 for the inspection of electrical engineering installations is applicable.

Every year, with a maximum extension of 1 month, the crane must be examined by an inspection body accredited in accordance with NEN-EN-ISO/IEC 17020 type A or type B. This examination must be carried out in conformance with ISO 9927-1 Cranes – Inspections. Generally, this examination consists of a visual inspection and verification of the functions and the effectiveness of these functions. It is not normally necessary to dismantle the parts for further examination. The generic inspection list as described in Annex A must be used as a checklist and also the accompanying instructions (see Annex C).

Every 5 years**,** with a maximum extension of 2 months, the crane has to be tested in the presence of an inspector from an inspection body accredited in conformance with NEN-EN-ISO/IEC 17020 type A or type B. The test programme is described in Annex B. The checklist of the load-dependent safety systems, contained in Annex A under the 1700 group, is included in this.

6. E&T AND INTERIM E&T ASSESSMENT FORMS

A year after the offshore crane with a CE mark has been taken into use the first annual assessment takes place in accordance with the certification scheme W2-01. On a voluntary basis the interim assessments can also be carried out as described below. The first re-examination takes place **1 year** after the offshore crane has been taken into use. Interim assessments can also be carried out, as described in this certification scheme W2-01.

6.1 Assessment forms

The following documents form part of the certification scheme.

6.1.1. Assessment form (see Annex A)

The details about the offshore crane are recorded on this form. It also includes a summary of the parts of the crane, and provides the opportunity to record the findings for each part.

> Note:
> The assessment form in Annex A is a generic inspection list for a General purpose offshore crane and is based on ISO 9927-1 Cranes – Inspections. It has been sought to design the form so extensively that it applies for all types of fixed offshore cranes. In consultation with the manufacturer of the offshore crane and the owner of the crane an additional inspection list can be produced with the correct names of the parts. The scope and the format of the inspection list must however be comparable with the form in annex A. The inspection list must be submitted to the accredited inspection body for approval.

6.1.2. Test programme (see Annex B)

The test programme gives a description with notes of the way in which the offshore crane will be tested.

6.1.3. Instructions for the assessment form (see Annex C)

For carrying out the examination and test programme instructions have been produced for carrying out the programme and recording the findings.

7. CRANE LOG

7.1. General

The owner of the offshore crane is responsible for ensuring that there is a crane log with the crane in question and that this crane log is maintained correctly and clearly.

The owner of the offshore crane or, on behalf of the owner, the manufacturer of the offshore crane, determines how the log should be presented and must submit it to the accredited inspection body for approval.

The crane log can be in the form of a hard copy or as an electronic version. In both cases, however, the owner of the crane must ensure that measures have been taken and that the origin of the various people filling in this log is traceable. The crane log may be an integral part of the crane manual supplied by the supplier, or refer to the crane manual (see also the requirements regarding the content and how the crane log is to be filled in) where possible. The crane log may be an integral part of the maintenance management system of the offshore installation administered by the owner, provided that the administrative tasks of the inspector of the accredited body, or the officers responsible for enforcing the Working Conditions Act, can be carried out in this in a sound and user-friendly way.

The crane log must be kept near the crane, and if requested must be given for inspection at once to:

- the officers responsible for enforcing, and cooperating in implementing the Working Conditions Act;
- the inspector(s) of the certified inspection body;
- any other independent inspection or research bodies (e.g. people studying the strength of materials);
- the organisation that carries out the maintenance on the crane.

These parties must be given the opportunity to make comments in the crane log, but the last-named of these parties may only do so after consulting the owner in question of the offshore crane.

The relevant certificates concerning the cables and hoisting gear must also be kept near the crane and if requested must be given for inspection at once to the parties referred to above.

7.2. Requirements as regards the contents and filling in of the crane log

7.2.1. Fixed contents

See also “Het Kraanboek” (the crane log) (FM001823 published by Sdu/ The Hague)

- General
- Identification of the crane
- Details about the owner and details about the initial testing
- Summary of annual inspections by the accredited inspection body and any other periodic checks (e.g. strength test on the pedestal)
- Steel cable checks (for each cable)
- Crane block checks and checks on any other items of hoisting gear that are fixed to the crane
- Summary of incidents, repairs and modifications (including corrosion treatments)
- Space for general comments
- Annex: general information about the crane. This applies only if this information is not contained in the accompanying crane manual.
- Annex: steel wire table. This applies only if the steel cables that are used are different or are not stated in the crane manual.
- Annex: hoisting blocks and items of hoisting gear. This applies only if the hoisting blocks and items of hoisting gear that are used are different or are not stated in the crane manual.

- Annex: hoisting tables (if these are not present or are different from that stated in the crane manual).

7.2.2. Filling in

The crane log must be filled in accurately, in good order and truthfully.
Any change in the information contained in the crane log must be marked at once.
Comments must not be changed or made such that they are illegible.

In the crane log the following information must be entered on the inspection pages:
- the date of the inspection;
- the organisation and the name of the person who carried out the inspection, the examining or the testing;
- the category of the inspection, examining or testing;
- the scope of the inspection;
- the main conclusions from the inspection, examining or testing.

On the pages for the steel cables, crane blocks and any other items of hoisting gear, the following information must be given regarding the inspection:
- the date of the inspection;
- the organisation and the name of the inspector or person carrying out the testing;
- the conclusions as to whether the crane is or is not in order;
- against which standard the inspection has been carried out (if applicable).

On the pages for incidents, repairs and modifications
These should contain details about incidents, repairs and/or modifications that relate to the bearing structure (including the pedestal) and/or (parts of) the mounting with which the crane is kept in its original condition or modifications which do not change the ways in which the crane can be used.
Major painting work is also seen as being a repair.

> Note:
> Modifications which change the ways in which the crane can be used have to be considered as being a far-reaching change in which case the rules produced by the classification organisation have to be followed. The CEN standards must be followed as a guide.

8. QUALIFICATIONS OF PERSONNEL

8.1. Purpose

In NEN-EN-ISO/IEC 17020 “General criteria for the operation of various types of bodies performing inspection”, requirements are defined in respect of the integrity and expertise of the personnel, including the management, of an inspection body so that this inspection body is able to properly fulfil its technical functions and that persons or organisations outside the inspection body cannot exert any influence on the inspections that have been carried out.

The competence criteria below have been established in order to meet this purpose for carrying out inspections on cranes on fixed offshore installations.

8.2. Function of the Technical Inspector

Education: At least at MBO level (intermediate vocational education) or a demonstrably equivalent level of education, specific knowledge of mechanical engineering, electrical engineering, hydraulics and pneumatics. Knowledge of the regulations, the law, rules and regulations and standards concerning the inspecting of offshore cranes.

Intake: 5 years of relevant practical experience with the maintenance and the inspection of cranes and a good understanding of the specific aspects of operating an offshore crane.

Communication skills: The ability to express oneself well verbally and in writing, also in English. Can get on well with co-workers of clients, government agencies and other supervisory bodies.

Self-reliance: Must be able to give advice and make decisions autonomously.

Other qualifications:
Offshore training as prescribed in statutory rules and regulations

8.3. Function of the Technical Manager

Education: At least at HBO level (higher vocational education) or a demonstrably equivalent level of education, specific knowledge of machine construction, mechanics and mathematics. Specific knowledge of the regulations, the law, rules and regulations and standards concerning all aspects of hoisting cranes.

Intake: Technical management experience and 3 years of relevant experience in the offshore cranes sector. Experience and a permanent appointment in the inspection body.

Communication skills: The ability to express oneself well verbally and in writing, also in English. Can get on well with management and co-workers of clients, manufacturers, government agencies and other national and international bodies.

Self-reliance: Must be able to make decisions autonomously and independently within the limits set for the organisation and manage co-workers.

9. TCVT CERTIFICATE OF APPROVAL AND TCVT APPROVAL STICKER

For the design of the TCVT Certificate of Approval and the TCVT Approval Sticker, see Annex D (taken from document VT-0B5 on the Rules and Regulations on the Use of the TCVT Logo).

10. REFERENCES

	Working Conditions Decree, Article 7.19. Arbo information sheet "Hoisting and lifting gear and hoisting safely". Assessment of hoisting gear in the operational phase, Vereniging Verticaal Transport (the Vertical Transport Association).
EN 12644-1	Cranes - Safety - requirements for inspection and use - Part 1: Instructions
prEN 12644-3	Cranes - Safety - requirements for inspection and use - Part 3: Fitness for purpose
NEN-EN 13852	Cranes - Offshore cranes - Part 1: General purpose offshore cranes
FM001823	Kraanboek voor vast opgestelde kraan op rails rijdende kraan drijvende kraan (Crane log for fixed cranes and rail-mounted cranes), published by Sdu/ The Hague
	Manual on working conditions, accreditation and certification
HSE Reference:3628	Lifting Operations and Lifting Equipment Technical Guidance
ISO 9926-1:1990	Cranes - Training of Drivers - Part 1: General
ISO 9927-1:1994	Cranes - Inspections - Part 1: General
ISO 12478-1:1997	Cranes - Maintenance manual - Part 1: General
ISO 12480-1:1997	Cranes - safe use - Part 1: General
ISO 12482-1:1995	Cranes - Conditioning monitoring - Part 1: General
	Machinery Directive
NEN-EN-ISO/IEC 17020	General criteria for the operation of various types of bodies performing inspection
NEN 3140	The operating of electrical installations – low voltage
	NOGEPA training manual
ISO-4309	Guidelines for the care, installation, maintenance and examination of wire rope in service on a crane
NEN-3233	Periodical reports cables
OTO 97 041	The use of mobile cranes offshore
www.tcvt.nl	The TCVT website
ATEX 137	As per the 1st of July 2006, all labour work areas must comply with the minimum requirements the ATEX 137 guideline
NEN-EN-IEC 60079-17	Inspection, maintenance electric materials

Identification code:
TCVT W2-01/ 08-209

ANNEX A

FORMAT OF THE ASSESSMENT FORM FOR THE PERIODIC EXAMINING AND TESTING OF OFFSHORE CRANES

Drawn up by:
Study group 2 Periodic Inspection of Offshore Cranes date 17-09-2008

Approved by:
CCvD-VT, date

Adopted by:
Executive Board, Stichting TCVT, date

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EXPLANATORY NOTES

NEN-EN-ISO/IEC 17020 “General criteria for the operation of various types of bodies performing inspection” states that the accredited inspection body must apply inspection methods and procedures that are set out in the requirements against which conformance has to be determined.

The inspection list for offshore cranes, described in Annex A, and the accompanying instructions (Annex C) flesh out the requirements. This inspection list also fleshes out the recommendations in ISO 9927-1 Cranes – Inspections.

This inspection form is intended to be used as the format by the inspection bodies accredited in conformance with NEN-EN-ISO/IEC 17020 type A and type B, which are authorised by the accreditation council to conduct the annual inspection of cranes on fixed mining installations. The report should be carried out taking into account the “instructions” that accompany this inspection list.

It is advised that this format should also be used for other periodic inspections of offshore cranes or other hoisting applications on Offshore Mining Installations.

The original of the filled in inspection form must be inserted in the crane log within 4 weeks after the inspection.

The filled in inspection form must be kept until it can be replaced by a filled in form for the next periodic inspection carried out by an accredited inspection body.

The inspection form and the crane log must be shown to authorised officers on request.

Customer's job number: ..... page 1/7

Date of inspection : .....

Carried out by : ..... (stamp + signature)

(company / body)

Specialist : .....

Hoisting crane details

Manufacturer : ..... Company no. : .....

Model / type : ..... Year built : .....

Factory number : ..... Hours in use : .....

Installed on : .....

Type of crane

Stationary / column Lattice boom..... ..... m

.... m

Drive system: Combustion engine / Electric / Hydraulic

Owner

Name : .....

Address : .....

Place of business: .....

Contact person : .....

Telephone no. : .....

Client

Company : .....

Officer : .....

Telephone no. : .....

Findings

Shortcomings : **NO / YES**, for the points :

Urgent : .....

General : .....

Report issued to:

Name / Position : ..... / .....

Company : .....

Signature for receipt : ..... date.....

(X = in order/not in order; O = not applicable)

		io/nio	Comments
0100	**Documentation**		
0101	Crane log	.....	
0102	Operating / maintenance / assembly instructions	.....	
0103	Electrical / hydraulics / pneumatics diagram	.....	
0104	Certificates, steel cables dated……	.....	
0105	Certificates, hoisting blocks, wedgesocket dated……	.....	
0106	Certificate no. / date last tested	.....	
0107	Last inspection report dated	.....	
0108	Maintenance report present	.....	
0109	Assessment of last maintenance report dated	.....	
0110	Periodic maintenance carried out in conformance with the programme	.....	
0111	Assessment of last NEN 3140 report dated	.....	
0112	Assessment of last Atex report		
0113	Slewing ring inspection and condition procedure	.....	
0114	.....	.....	
0200	**Access**		
0201	Steps / stairs / cage ladders	.....	
0202	Platforms / walkways	.....	
0203	Handgrips / handrails	.....	
0204	Escape route	.....	
0205	.....	.....	
0300	**Cabin / control point**		
0301	Controls (buttons / handles / pedals) (0 position)	.....	
0302	Instruments - view on mechanical radius indicator	.....	
0303	Load recording system	.....	
0304	Hoisting tables (in line with crane log)	.....	
0305	Emergency stop button / protection	.....	
0306	Movement no longer possible after engaging	.....	
0307	Emergency release of hoisting winch	.....	
0308	Windows (safety glass)	.....	
0309	Fire extinguisher	.....	
0310	Means of communication	.....	
0311	.....	.....	

0400	**Crane structure (visual)**	**io/nio**	**Comments**
0401	Structure		.....
0402	Bolt / pin connections / lockings		.....
0403	Cable pulleys		.....
0404	Cable run-out safety devices		.....
0405	Control on cable clearance		.....
0406	Lubrication		.....
0407	Overall condition		.....
0408	Bilge level pedestal.		

0500	**Slewing gear**		
0501	Slewing ring		.....
0502	Slewing ring fastening / bolts		.....
0503	Drive wheels / gear ring / drive pinion		.....
0504	Gearbox / drive		.....
0505	Coupling		.....
0506	Lubrication		.....
0507	Brakes / pawl		.....
0508	Grease sample report available		.....
0509	Axial clearances (N,E,S,W)		.....

0600	**Winchgear**	**Main winch io/nio**	**Aux. winch io/nio**	**Top winch io/nio**	.... **io/nio**	**Comments**
0601	Drum / bearings					.....
0602	Fastening of the cable on the hoist drum breaks at a force less or equal to 10% of the minimum breaking force of the cable			n.a.		.....
0603	Fastening of the cable on the drum breaks at a force greater than 100% of the min. breaking force of the cable.	n.a.	n.a			.....
0604	Slack cable / clearance protection					.....
0605	Pawl / belt brake					.....
0606	Overall condition					.....
0607	.....					.....

0700	**Running cables**	**Main winch**	**Aux. winch**	**Top winch**	....
0701	Cable conform crane log/certificate				.....
0702	Condition of cable				.....
0703	Protection against corrosion				.....
0704	Cable inspection carried out in accordance with ISO 4309				.....
0705	Installation				.....
0706	End connection				.....
0707	.....				.....

0800	**Standing cables (guy ropes)**	**io/nio Left**	**io/nio Right**	**Comments**
0801	Cable in conform. with crane log/certificate			
0802	Condition of cable / preservation			.....
0803	Cable inspection carried out in accordance with ISO 4309			.....
0805	Installation			.....
0806	End connection			.....
0807	.....			.....

0900	**Hoisting hook and blocks**	**Main hoist**	**Aux. hoist**	
0901	Name of hoisting hook / block	.....	.....	.....
0902	Details in conform. with certificate			.....
	Hook:			
0903	Safety lock			.....
0904	Y dimension of the hook			.....
0905	Overall condition (wear, cracks, changes in shape, etc.)			.....
	Blocks:			
0906	Overall condition			.....
0907	Lubrication			.....
0908	Lockings			.....
0909	.....			.....

1000	**Diesel motor**	**io/nio**	**Comments**
1001	Exhaust system		.....
1002	Spark arrester exhaust		.....
1003	Overall condition of the diesel motor		.....
1004	Maintenance report present		.....
1005	.....		
1100	**Hydraulics installation**		
1101	Hydropumps / motors		.....
1102	Hoses / lines / couplings		.....
1103	Oil tank		.....
1104	Top cylinder(s), working, condition		.....
1105	Telescopic cylinders		.....
1106	Control equipment, general		.....
1107	Maintenance report present		.....
1108	Sealing of hydraulic safety valves		.....
1109	Hydraulic accumulator's		.....
1110	.....		.....
1200	**Pneumatics installation**		
1201	Inspection period, air tank		.....
1202	Inspection period, safety valve *& seal*		.....
1203	Hoses / lines / couplings		.....
1204	Certificates for air tanks (PED)		.....
1205	.....		.....
1300	**Electrical installation *)**		

*) If sealed to be tight against sparks, the control has to be carried out by the supplier. Report this after this point!

1301	Electrical wiring / cables/ cable trays		.....
1302	Switchbox / equipment		.....
1303	Work lighting / obstruction lighting		.....
1304	Guarding of live parts		.....
1305	Earthing and bonding		.....
1306	Slip ring unit		.....
1306	.....		.....

1400	**Electromotors *)** **Drive unit**	
1401	Fixing	.....
1402	Coupling	.....
1403	Earths	.....
1404	Overall condition	.....
1405	.....	.....
1500	**Miscellaneous**	
1501	Paintwork	.....
1502	Identification	.....
1503	Mechanical escape route signs	.....
1504	Overall condition of the crane	.....
1505	Have major repairs / modifications been carried out expertly	.....
1506	.....	.....

Functional tests:

1600	**Automatic limiters / safety devices (not load-dependent)**	**Main winch io/nio**	**Aux. winch io/nio**	**Comments**
1601	Highest position of hoist block(s)			.....
1602	3 coil safety device (minimum)			.....
1603	Highest position of boom / signal			.....
1604	Lowest position of boom / signal			.....
1604	Slewing limiter(s) (signal)			.....
1605	.....			.....
1700	**Automatic limiters / safety devices (load-dependent)** (*These items are also checked in the 5-year load test)			
1701	Load indicator			.....
1702	*Load limiter			.....
1703	*warning 100% optical red / acoustic			.....
1704	Load moment safety device (max +/- 2,5%)			.....
1705	*pre-warning *90%* optical yellow			.....
1706	*warning 100% red / acoustic			.....
1707	*switch off luffing cut out			
1708	Load Moment Safety bypass switch			
1709	Slack rope safety device			
1710	*Holding test with max. winch force			.....

Hoisting table number:	**Test: load moment safety device (LMB)**

Item	Boom m. 1	Jib m. 2	Total length m 3	reeving s 4	Slewing area R=360 L= limited space 5	Hoisting table for P=platform S=sea lifts M=men lifting 6	WLL Free in the hook Kgs 7	LMB stop at a radius of m 8	WLL In conform. with hoisting table Kgs 9	Difference in % between column 7 and 9 10	Acc	N.acc
1											☐	☐
2											☐	☐
3											☐	☐
4											☐	☐
5											☐	☐
6											☐	☐
7											☐	☐
8											☐	☐
9											☐	☐
10											☐	☐

		Main winch	**Aux. winch**
1800	**Emergency lowering gear**		
1801	Instructions for using emergency lowering gear present	.....	
1802	Lowering with a switched-off power source	.....	
1803	.....	.....	
1900	**Additional safety systems**		
1901	Automatic overload protection system	.....	
1902	Manual overload protection system	.....	
1903	Transporting of persons	.....	

2000 Notes and/or comments.

.....

Identification code:
TCVT W2-01/ 08-209

ANNEX B

TESTING PROGRAMME

FOR THE PERIODIC EXAMINING AND TESTING OF

OFFSHORE CRANES

Drawn up by:
Study group 2 Periodic Inspection of Offshore Cranes date 17-09-2008

Approved by:
CCvD-VT, date

Adopted by:
Executive Board, Stichting TCVT, date

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1. FOREWORD

This programme must, depending on the crane that is to be tested, be followed in combination with the assessment form for the periodic examining and testing of offshore cranes (Annex A).

2. FREQUENCY OF TESTING

Every 5 years, with a maximum extension of 1 *month*, the crane must be tested with a test load.
This test every 5 years may take place at the same time as the inspection of the pedestal, which is carried out under the supervision of the classification organisation.

3. TEST LOAD

The test load is equal to the hoisting load (which may be the safe working load). An inspector from an accredited inspection body must be present.

4. TEST WEIGHTS

These must be set up near the crane and provided with certified and sound fastening and hoisting means. The mass of the test weights must be marked on the test weights. If concrete test weights, containers with loose parts and the like are used, the weights must be checked by weighing them. When setting up the test weights, the maximum deck load per m² of the offshore location must also be taken into account.

If water bags are used, they must be attached to the crane hook using a calibrated load sensor. This calibrated load sensor must have an accuracy of +/- 2.5%.

5. SLEWING AREA

The slewing area of the crane must be as free of obstacles as possible. So far as possible, the hoisting of the test load should be carried out over the sea.

6. SOUND HOISTING GEAR

Certified and sound hoisting gear, suitable for hoisting the test load, must be used for testing the crane. When testing, the wind speed allowed for the hoisting crane in question by the manufacturer must be taken into account.

7. THE TESTS AND CHECKS

During the test all load-dependent safety and limit devices have to be checked. In consultation with the client, the inspection body must have prepared beforehand a test programme relating specifically to the machine (see also under Annex A under 1700).

8. CRANE ASSEMBLIES

It is not necessary to test all the possible assemblies of a crane. If possible, in consultation with the inspection body, when a periodic test is carried out the test should be carried out with a different assembly to that tested in the previous test.

9. REPORTING

The results of the load test(s) must be recorded in the crane log.

Identification code:
TCVT W2-01/ 08-209

ANNEX C

INSTRUCTIONS FOR THE ASSESSMENT FORM FOR THE PERIODIC EXAMINING AND TESTING OF OFFSHORE CRANES

Drawn up by:
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ANNUAL INSPECTION LIST FOR AN OFFSHORE CRANE

(in accordance with ISO 9927-1)

0101 Documentation

0101 Crane log
The crane log must be filled in completely with among others the last E&T that was carried out.
Maintenance work and major repairs and/or modifications must be recorded.
Replacing of steel cables and checks must be recorded on the appropriate pages.
Check for the presence of a hoisting table.

0102 Operating / maintenance / assembly instructions
Check for the presence of the operating, maintenance and assembly instructions.

0103 Electrical / hydraulics / pneumatics diagrams
Check for the presence of the electrical, hydraulics and pneumatics diagrams.

0104 Certificates, steel cables dated……
Check that the steel cable certificates are in conformance with the manufacturer's instructions.

0105 Certificates, hoisting blocks dated…….
Check the certificates are in conformance.

0106 Certificate no. / date of last test

0107 Last inspection report dated .....
Read through the last inspection report and note the deviations that were reported.

0108 Maintenance report present.
Check for the presence of the maintenance report.

0109 Assessment of the last maintenance report dated.....
Check for and read through the last maintenance report.
Look carefully at the comments that were made then.

0110 Periodic maintenance carried out by / on behalf of the user / administrator in conformance with the programme
Check for and read through the last maintenance report.
Look carefully at the comments that were made then.

0111 Periodic maintenance carried out by the maintenance contractor in conformance with the programme
Check for and read through the last maintenance report.
Look carefully at the comments that were made then.

0112 Assessment of the electrical engineering report (NEN 3140) dated .....
Check the interval between inspections as set out in the risk list.
Check for and read through the last maintenance report.
Look carefully at the comments that were made then.

0113 Slewing ring inspection and condition procedure

Check for measurements carried out against the tolerances, condition further to summaries of grease samples.

0200 Access

0201 Steps / stairs / cage ladders

0202 Platforms / walkways
Check for anti-slip coatings.

0203 Handgrips / handrails / stair enclosures / protection against falling

0204 Escape route
201 to 204 Check for the overall condition of these parts.
Look out for damage, fastenings, welding work, attack by corrosion, free of obstacles

0300 Cabin / control point

0301 Control (buttons / handles / pedals) (0 condition)
Check the control units, such as whether they come back to 0 and can be used easily.

0302 Instruments
Check the working and how easily they can be read.

0303 Load recording system
Check the working of the system, read out and assess.

0304 Hoisting tables (in line with the crane log)
Check for the presence in the cabin of a hoisting table that can be easily read.
Is everything in conformance with the table in the crane log.

0305 Emergency stop button.

0306 movement is no longer possible after it has been engaged
305-306: Check the working of the emergency stop button.

0307 Emergency lowering.
Check the working of the emergency lowering system.

0308 Windows (safety glass)
Check the condition of the windows.

0309 Fire extinguisher
A fire extinguisher with a valid inspection date must be present with the crane.

0310 Communication means
Check for the presence of and the functioning of the communication system.

0400 Crane structure (visual)

0401 Structure
Visual inspection of welded joints. Particular attention to welds where the paint has broken or that show a lot of corrosion.
Check the structure for dents, bent pieces, severe rusting and other damage. Check the fixing of parts to each other.

0402 Bolt / pin connections / lockings
Check all bolt and pin connections and their locking, including parts built on to them where there may be risks of falling (work lighting, navigation lighting, limit switches, etc.).

0403 Cable pulleys
Check the groove wear (with a groove gauge).
Check the bearing play and the position of the bearings. Check the clearance in relation to the next pulley or wall. Note: check the factory specification of the bearings; some bearings have a lot of play.

0404 Cable run-out safety devices
Check for the presence, the correct positioning and the functioning of the run-out safety devices.

0405 Control on cable clearance
Check for chafing along structural parts.

0406 Lubrication
Check lubrication.

0407 Overall condition

0500 Slewing gear

0501 Slewing ring
Check the working in general. Look out for noises and play. Check the seal.
Bearing play must be measured in accordance with the manufacturer's specification.

0502 Slewing ring fastening / bolts
Check for the presence and secure fitting of all bolts on the slewing ring in accordance with the manufacturer's instructions.

0503 Drive wheels / gear ring / drive pinion
Check the toothing for excessive wear.
Check the tooth clearance between the gear ring and the pinion.

0504 Gearbox / drive
Check the overall condition.

0505 Coupling
Check the condition of the coupling

0506 Lubrication
Check whether the transmission is sufficiently lubricated.

0507 Brakes
Check the brakes for functioning (without a load)

0600 Winchgear

0601 Drum / bearings
Check the grooves for wear.
Check the flanges of the drum for wear or sharp edges or deformation caused by wear.
Check for excessive play of the bearings.

0602 Fastening of the cable on the drum breaks at a force less or equal to 10% of the minimum breaking force of the cable.
Check the fastening of the cable on the drum.

0603 Fastening of the cable on the drum breaks at a force greater than 100% of the minimum breaking force of the cable.
Check the fastening of the cable on the drum.

0604 Run-out safety device
Check for the presence, the correct positioning and the functioning of the run-out safety devices.

0605 Pawl / belt brake
Check the working of the pawl and the brake lining of the belt brake.

0606 Overall condition

0700 Running cables

0701 Cable in conformance with crane log / certificate
Check the cables being used for conformance with specification, crane log and certificate

0702 Condition of the cable
Record the measured diameter of all cables. It must be in accordance with cable specification NEN 3233.
The dimensions given by the manufacturer for rejection must be followed. The rejection standard to be used must be from the standard for the steel cable in question.
The life of a steel cable in a machine is very much dependent on its construction, the environment in which it is used and how it is used.
Periodic inspections must be carried out at regular intervals, which in turn depend on the circumstances in which the steel cable is used.
During the inspection, particular attention should be paid to those areas where corrosion, wear, fatigue or damage may be expected as a result of the circumstances in which the cable is used.
During the inspection it should always be borne in mind that with a visual assessment only external defects in the cable can be seen.

A cable can be rejected on the grounds of breaks in the wire, wear, corrosion, a reduction in diameter, external damage, numerous fractures together and a broken strand, broken wires + wear + corrosion + a reduction in diameter.
The above-mentioned rejection criteria must be applied to the worst parts of a steel cable.

0703 Protection against corrosion
Check the cable for protection against corrosion

0704 Cable inspection carried out in accordance with ISO 4309

0705 Check whether the cable has been installed in accordance with the manufacturer's instructions.

0706 Check whether the end connections have been fitted in accordance with the manufacturer's instructions.

0800 Standing cables (guy ropes)

0801 Cable in conformance with crane log / certificate
Check the cables being used for conformance with specification, crane log and certificate

0802 Condition of the cable

Record the measured diameter of all cables. It must be in accordance with cable specification NEN 3233.

The dimensions given by the manufacturer for rejection must be followed. The rejection standard to be used must be from the standard for the steel cable in question.
The life of a steel cable in a machine is very much dependent on its construction, the environment in which it is used and how it is used.
Periodic inspections must be carried out at regular intervals, which in turn depend on the circumstances in which the steel cable is used.
During the inspection, particular attention should be paid to those areas where corrosion, wear, fatigue or damage may be expected as a result of the circumstances in which the cable is used.
During the inspection it should always be borne in mind that with a visual assessment only external defects in the cable can be seen.
A cable can be rejected on the grounds of breaks in the wire, wear, corrosion, a reduction in diameter, external damage, numerous fractures together and a broken strand, broken wires + wear + corrosion + a reduction in diameter.
The above-mentioned rejection criteria must be applied to the worst parts of a steel cable.

0803 Cable inspection carried out in accordance with ISO4309

0805 Check whether the cable has been installed in accordance with the manufacturer's instructions.

0806 Check whether the end connections have been fitted in accordance with the manufacturer's instructions.

0900 Hoisting hooks and blocks

0901 Name of hoisting hook / block
For each hook and block that goes with the crane, record the information requested in the assessment report.

0902 Details in conformance with certificate / crane log.
Check whether the details on the hook and the block are the same as in the certificate / crane log.

Hooks:

0903 Safety lock
Check whether the safety lock is on and is working properly.

0904 Y dimension
Check whether the Y dimension of the hook is the same as on the certificate.

0906 Overall condition
Check the pressure bearing of the hook and the locking of the fastening nut.
Check the hook for deformation, cracks and wear.

Blocks:

0907 Overall condition
Check the fastening of the side plates, the pendulum bearing of the hook traverse and on the bearing journals of the block eye.
Check for wear, cracks, excessive bearing play of the pulleys and other damage.
Check that the warning stripes are clearly visible.

0908 Lubrication
Check whether all the parts of the hoisting block are well lubricated.

0909 Lockings
Check whether all lockings are fitted correctly.

1000 Diesel motor

1001 Exhaust system
Check the overall condition of the motor exhaust.

1002 Spark arrester exhaust
Check the condition of the spark arrester.

1003 Overall condition of the diesel motor.
Check the overall condition, suspension, V belt, leaks.

1004 Maintenance report present
Check for test reports, motor safety devices.

1100 Hydraulics installation

Warning: oil causes serious fouling.
In all cases in which oil leaks may occur when checks or tests are being carried out, suitable receptacles must be put in place to catch the oil.

1101 Hydropumps / motors
Check for proper working and look out for any other noises.

1102 Hoses / lines / couplings
Check for damage and that they are fitted correctly.

1103 Oil tank
Check the level in the oil tank and check the tank for leaks.

1104 Top cylinder(s), working, condition
Check the cylinder rod for damage and internal leaks.

1105 Telescopic cylinder, working, condition
Check the cylinder rod for damage and internal leaks.

1106 Control equipment, general
Check the control equipment for proper working.

1107 Maintenance report present
Check for the presence of the maintenance report on the hydraulics system and that it has been updated.

1108 Sealing of hydraulic safety valves
Check for the presence of seals.

1109 Certificates, accumulators
Check the certificates for conformance.

1200 Pneumatics installation

1201 Inspection period, air tank
Check the inspection period for the air tank. Make a note in the report if the inspection is due.

1202 Inspection period, overpressure safety device.
Check for the presence of seals.

1203 Hoses / lines / couplings
Check for damage and that they are fitted correctly.

1204 Certificates, pressure tanks
Check the certificates for conformance.

1300 Electrical installation *)

*) If sealed to be tight against sparks, the control has to be carried out by the supplier. Report this after this point!

1301 Electrical wiring / cables

Check the cables for insulation and for the soundness of the feed-throughs of the cables.
Check the fastening of the cables.

1302 Switchboxes / equipment
Check that the switchboxes are in good condition.

1303 Work lighting / obstruction lighting
Check the working of the lights.

1304 Guarding of live parts
Check that live parts are guarded and for danger of electrocution.

1305 Earths
Check for the presence, condition and connection of earth wires.

1306 Slip ring unit
Check that the outside of the slip ring unit is in good condition.

1400 Electromotors *) Drive unit
*) If sealed to be tight against sparks, the control has to be carried out by an authorised person/authority. Report this after this point!

See maintenance report.
General external visual inspection.

1401 Fixing
Check the fixing of the electromotors and the cable inlet.

1402 Coupling
Check the elastic couplings for play and that they are fitted properly.

1403 Earths
Check the earths of the electromotors.

1404 Overall condition

1500 Miscellaneous

1501 Paintwork
Check the overall condition of the hoisting crane. Check the condition of the paintwork. Make a note of rusting and places that have rusted through.

1502 Identification
Check and verify the details about the crane, such as the make, the type, its number and the year it was built.
Check for the CE mark for cranes built after 01 January 1995.

1503 Mechanical escape route signs
Check the working of the mechanical escape route signs.

1504 Overall condition of the crane

1505 Have major repairs / modifications been carried out expertly?
Have major repairs / modifications been reported? Have the repairs / modifications been carried out carefully in accordance with specifications and has it been demonstrated that the repairs / modifications are sound (for example by an inspection by a specialist institute or the classification organisation).

Functional tests:

1600 Automatic limiters / safety devices (not load-dependent)

1601 Highest position of hoist block(s)
Check the working of the switch for the highest position of the hoist blocks.

1602 3 coil safety device (minimum)
Check the 3 coil safety device. For this the cable has to be lowered so far that there are still 3 coils on the drum.

1603 Highest position of boom / signal
Check the working of the switch for the highest position of the boom and the signal that goes with it.

1604 Lowest position of boom / signal
Check the working of the switch for the lowest position of the boom and the signal that goes with it.

1604 Slewing limiter(s) (signal)
Check the slewing limiters and the signal that goes with it.

1700 Automatic limiters / safety devices (load-dependent)
(*These items are also checked in the 5-year load test)

1701 Load indicator

Check whether the load indicator corresponds to the weight of the test load.
Note that in this and also in the following tests the weight of the hoist block can form part of the load.

1702 *Load limiter
Check, from the manufacturer's specifications or using a test load, the setting of the load limiter.

1703 *warning 100% optical red / acoustic

1704 Load moment safety device

1705 *pre-warning *90%* optical yellow.

1706 *warning 100% optical red / acoustic.

1707 *switch off luffing cut out

Check whether the overload signal is activated at a given load and working radius.
The luffing cut out has to be switched off, not the hoisting.

1708 LMS bypass switch
Check the working of the bypass switch. This is operated manually, and springs back automatically.

1709 Slack rope safety device
Check the slack rope safety device by gradually relieving the load on the cable.

1710 *Holding test with max. winch force
This tests the tensile force of the cable on the drum. It must be in agreement with the details in the hoisting table. The test must be carried out in conformance with the manufacturer's specifications or the client's procedures or load test.

1800 Emergency lowering gear

1801 Instructions for using emergency lowering gear present
Are these instructions clear and in the cabin or in the immediate surrounding area.

1802 Lowering with a switched off power source
Check the working of emergency lowering in accordance with the procedure.

1900 Additional safety systems

1901 Automatic overload protection system
Check the system in conformance with the manufacturer's instructions.

1902 Manual overload protection system
Check the system in conformance with the manufacturer's instructions.

1903 Transporting of persons
Check the system in conformance with the manufacturer's instructions.
Check for the presence of certification

2000 Space for notes and/or comments.

Identification code:
TCVT W2-01/ 08-209

ANNEX D

TCVT CERTIFICATE OF APPROVAL AND TCVT APPROVAL STICKER

Drawn up by:
Study group 2 Periodic Inspection of Offshore Cranes date 17-09-2008

Approved by:
CCvD-VT, date

Adopted by:
Executive Board, Stichting TCVT, date

TCVT Certificate of Periodic Approval

ABC	ABC-Certification B.V. P.O. Box 7777 0000 AN ROTTERDAM	Tel. 010-2222222 Fax. 010-3333333 RvA logo Accreditation no: ……..

This TCVT Certificate of Approval is issued by ABC-Certification B.V.
on the basis of the certification scheme for the examining and testing of offshore cranes W2-01 dated ..-..-…. in accordance with the Rules and Regulations for Inspections of ABC-Certification, issue …….

The certification scheme has taken into account the European Standard:

- EN13852 Cranes-Offshore Cranes-Part 1: General purpose offshore cranes.

ABC-Certification B.V.* declares that on dd-mm-yyyy the offshore crane referred to below

- was examined and tested in accordance with the above-mentioned Standard and based on the findings has been approved;
- meets the other requirements set out in the above-mentioned certification scheme.

On behalf of ABC Certification B.V. Karel Kraanspectaan, inspector

Details of the offshore crane
Make: Zeppelin
Type: Zeppelin SKC 136 LOW TOP
Serial number: 13 Z 105768 BBR 1247
Date issued: 20-01-2000
Assessment form number: …….
TCVT Approval Sticker: …….

This certificate consists of two pages

Document code	Expired version dated	Current version dated	Drawn up by study group 2	Approved by CCvD-VT	Adopted by Executive Board, Stichting TCVT
W2-01	14-11-2006	08-209	17-09-2008	**26-11-2008**	**09-12-2008**

Reprints are forbidden

Notes for the user

1. At the latest 13 months after the examination has been carried out a periodic examination must be carried out again, by a body accredited in accordance with NEN-EN-ISO/IEC 17020 type A or NEN-EN-ISO/IEC 17020 type B. For details, see www.tcvt.nl.

2. In addition, at least every 5 years the offshore crane must be tested with a test load in the presence of an expert to ensure that it is in good working order.

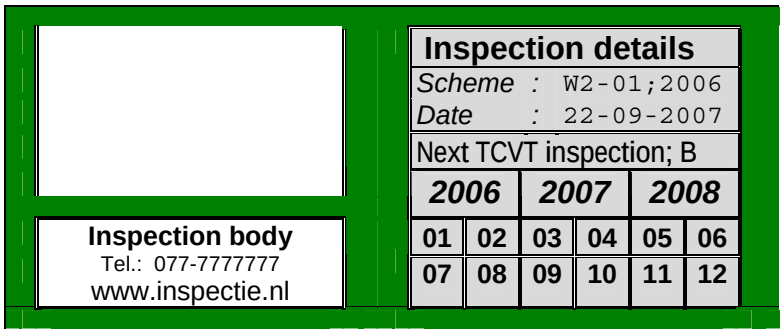
3. In the event of complaints, contact [*the client*] and in the case of serious complaints contact ABC-Certification B.V. P.O. Box 9999 KK ROTTERDAM.

4. The owner must allow the certification body to attach the TCVT Approval Sticker to the crane in conformance with the Rules and Regulations on the Use of the TCVT Logo (VT-800) at a place that is clearly visible to third parties.

TCVT Approval Sticker

To be taken care of by the inspection body.

Fill in by hand at the inspection site, date 22-09-2007, type A or B, and indicate with a cross the year/month of the next TCVT inspection.



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stickers can be ordered from the TCVT Office