



## **RULES FOR BUILDING AND CLASSING**

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# **MOBILE OFFSHORE DRILLING UNITS 2006**

### **PART 5 SURVEYS AFTER CONSTRUCTION**

**American Bureau of Shipping  
Incorporated by Act of Legislature of  
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## PART

# 5

## Surveys After Construction

### CONTENTS

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<b>CHAPTER 1</b>	<b>Surveys After Construction .....</b>	<b>1</b>
Section 1	Conditions for Surveys After Construction.....	5
Section 2	Corrosion Control Systems.....	11
Section 3	Annual Surveys.....	13
Section 4	Survey Pre-planning .....	15
Section 5	Special Surveys – Hull.....	17
Section 6	Specific Survey on Self-Elevating Units After Ocean Transit Tow.....	23
Section 7	Annual Surveys – Machinery .....	25
Section 8	Special Periodical Surveys – Machinery .....	27
Section 9	Tail Shaft Surveys.....	31
Section 10	Boiler Surveys.....	33
Section 11	Electrical Equipment .....	35
Section 12	Automatic and Remote-control Systems .....	37
Appendix 1	Underwater Inspection in Lieu of Drydocking .....	39

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PART

**5**

CHAPTER

**1 Surveys After Construction**

**CONTENTS**

<b>SECTION 1</b>	<b>Conditions for Surveys After Construction</b>	<b>5</b>
1	Damage, Failure and Repair	5
1.1	Examination and Repair	5
1.3	Repairs	5
1.5	Representation	5
3	Notification and Availability for Survey	6
5	Annual Surveys	6
7	Special Periodical Surveys	6
9	Continuous Surveys	7
11	Reactivation Surveys	7
13	Partially Complete Surveys	7
15	Alterations	7
17	Welding and Replacement of Materials	8
17.1	Ordinary and Higher-Strength Structural Steels	8
17.3	Special Materials	8
19	Drydocking Survey or Equivalent	8
19.1	Interval	8
19.3	Underwater Inspection in Lieu of Drydocking Survey	8
19.5	Parts to be Examined	8
<b>SECTION 2</b>	<b>Corrosion Control Systems</b>	<b>11</b>
<b>SECTION 3</b>	<b>Annual Surveys</b>	<b>13</b>
1	Parts to be Examined – Hull	13
1.1	All Types of Mobile Offshore Drilling Units	13
1.3	Surface-Type Units	14
1.5	Self-Elevating Units	14
1.7	Column-Stabilized Units	14
3	Alterations and Position of Load Lines	14
<b>SECTION 4</b>	<b>Survey Pre-planning</b>	<b>15</b>
1	Special Surveys	15
3	Underwater Inspection in Lieu of Drydocking	15

<b>SECTION 5</b>	<b>Special Surveys – Hull.....</b>	<b>17</b>
1	Special Survey No. 1 – Hull .....	17
1.1	General – All Drilling Units.....	17
1.3	Surface-type Units .....	18
1.5	Self-Elevating Units .....	18
1.7	Column-Stabilized Units .....	19
3	Special Survey No. 2 and Subsequent .....	19
TABLE 1	Thickness Gauging Requirements for Surface-Type Units .....	20
TABLE 2	Thickness Gauging Requirements for Self-Elevating Units .....	21
TABLE 3	Thickness Gauging Requirements for Column-Stabilized Units .....	22
<b>SECTION 6</b>	<b>Specific Survey on Self-Elevating Units After Ocean Transit Tow.....</b>	<b>23</b>
<b>SECTION 7</b>	<b>Annual Surveys – Machinery .....</b>	<b>25</b>
1	Self-Propelled Units .....	25
3	Non-Self-Propelled Units .....	25
<b>SECTION 8</b>	<b>Special Periodical Surveys – Machinery .....</b>	<b>27</b>
1	Correlation with Hull Special Surveys.....	27
3	Parts to be Examined.....	27
5	Units with Propulsion-Assist or Dynamic Position Certification .....	28
7	Special Features (All Types).....	28
7.1	Hazardous Areas.....	28
7.3	Remote Shutdown Arrangements .....	28
7.5	Fire Fighting Apparatus .....	28
7.7	Column Jacking Systems .....	29
7.9	Piping Systems.....	29
7.11	Miscellaneous.....	29
9	Retractable Propulsion Thrusters .....	29
<b>SECTION 9</b>	<b>Tail Shaft Surveys.....</b>	<b>31</b>
<b>SECTION 10</b>	<b>Boiler Surveys.....</b>	<b>33</b>
1	Survey Interval .....	33
3	Parts to be Examined.....	33

<b>SECTION 11</b>	<b>Electrical Equipment.....</b>	<b>35</b>
1	Timing of Survey .....	35
3	Parts to be Examined.....	35
5	Main Propulsion Apparatus.....	36
7	Major Repairs.....	36
<b>SECTION 12</b>	<b>Automatic and Remote-control Systems.....</b>	<b>37</b>
1	Annual Survey.....	37
3	Special Periodical Surveys .....	37
3.1	Control Actuators .....	37
3.3	Electrical .....	37
3.5	Unattended Plants.....	37
5	Repairs or Alterations .....	37
<b>APPENDIX 1</b>	<b>Underwater Inspection in Lieu of Drydocking.....</b>	<b>39</b>
1	General .....	39
3	Conditions .....	39
3.1	Limitations.....	39
3.3	Thickness Gauging and Nondestructive Testing .....	39
3.5	Plans and Data.....	39
3.7	Underwater Conditions.....	39
5	Physical Features .....	40
5.1	Stern Bearing .....	40
5.3	Rudder Bearings .....	40
5.5	Sea Suctions.....	40
5.7	Sea Valves.....	40
7	Procedures.....	40
7.1	Exposed Areas.....	40
7.3	Underwater Areas .....	40
7.5	Damage Areas .....	41
9	Alternatives .....	41

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## PART

# 5

## CHAPTER 1 Surveys After Construction

## SECTION 1 Conditions for Surveys After Construction

### 1 Damage, Failure and Repair (1 Jan. '96)

#### 1.1 Examination and Repair

Damage, failure, deterioration or repair to hull, legs, columns or other structures, machinery or equipment, which affects or may affect classification, is to be submitted by the Owners or their representatives for examination by a Surveyor at first opportunity. All repairs found necessary by the Surveyor are to be carried out to the Surveyor's satisfaction.

#### 1.3 Repairs

Where repairs to hull, legs, columns or other structures, machinery or equipment, which affect or may affect classification, are planned in advance to be carried out, a complete repair procedure, including the extent of proposed repair and the need for Surveyor's attendance, is to be submitted to and agreed upon by the Bureau reasonably in advance. Failure to notify the Bureau in advance of the repairs may result in suspension of the unit's classification until such time as the repair is redone or evidence submitted to satisfy the Surveyor that the repair was properly carried out.

*Note:* The above applies also to repairs during voyage or on site.

The above is not intended to include maintenance and overhaul to hull, other structures, machinery and equipment in accordance with the recommended manufacturer's procedures and established marine practice and which does not require Bureau approval. However, any repair as a result of such maintenance and overhauls which affects or may affect classification is to be noted in the unit's log and submitted to the Surveyor as required by 5-1-1/1.1.

#### 1.5 Representation

Nothing contained in this section or in a rule or regulation of any government or other administration, or the issuance of any report or certificate pursuant to this section or such a rule or regulation, is to be deemed to enlarge upon the representations expressed in 1-1-1/1 through 1-1-1/7 hereof, and the issuance and use of any such reports or certificates are to be governed in all respects by 1-1-1/1 through 1-1-1/7 hereof.

### **3 Notification and Availability for Survey (1 Jan. '96)**

The Surveyors are to have access to classed units at all reasonable times. The Owners or their representatives are to notify the Surveyors on occasions when parts of the structure not ordinarily accessible can be examined. The Surveyors are to undertake all surveys on classed units upon request, with adequate notification, of the Owners or their representatives and are to report thereon to the Committee. Should the Surveyors find occasion during any survey to recommend repairs or further examination, notification is to be given immediately to the Owners or their representatives in order that appropriate action may be taken. The Surveyors are to avail themselves of every convenient opportunity for carrying out periodical surveys in conjunction with surveys of damages and repairs in order to avoid duplication of work. See also 1-1-10/5.

### **5 Annual Surveys (1998)**

Annual Surveys are to be made within three months before or after of each annual anniversary date of the crediting of the previous Special Survey of Hull, or original construction date. For units on Continuous Survey, all Continuous Survey requirements for those parts (items) due are generally to be completed each year. The Annual Survey will not be credited and the Certificate of Classification will not be endorsed unless Continuous Survey items which are due or overdue at the time of the Annual Survey are either completed or granted an extension.

### **7 Special Periodical Surveys (1993)**

A Special Periodical Survey is to be completed within five years after the date of build or after the crediting date of the previous Special Periodical Survey. The interval between Special Periodical Surveys may be reduced by the Committee. If a Special Periodical Survey is not completed at one time, it will be credited as of the completion date of the survey, but not later than five years from date of build or from the date recorded for the previous Special Periodical Survey. If the Special Periodical Survey is completed prematurely but within three months prior to the due date, the Special Periodical Survey will be credited to agree with the effective due date. Special consideration may be given to Special Periodical Survey requirements in the case of mobile offshore drilling units of unusual design, in lay-up or in unusual circumstances. The Committee reserves the right to authorize extensions of Rule-required Special Periodical Surveys under extreme circumstances.

A Special Periodical Survey may be commenced at the fourth annual survey and be continued with a view to completion by the due date. In connection with the preparation for the Special Periodical Survey, thickness gaugings, as required for the forthcoming Special Periodical Survey, are to be taken to the extent accessible and practical in connection with the fourth annual survey.

Where the Special Periodical Survey is commenced prior to the fourth annual survey, the entire survey is normally to be completed within 12 months if such work is to be credited to the Special Periodical Survey.

## 9 Continuous Surveys

### 9.1

At the request of the Owner, and upon approval of the proposed arrangements, a system of Continuous Survey may be undertaken whereby the Special Periodical Survey requirements are carried out in regular rotation to complete all requirements of the particular Special Periodical Survey within a five-year period. The completion date will be recorded to agree with the original due date of the cycle. If the Continuous Survey is completed prematurely but within three months prior to the due date, the Special Periodical Survey will be credited to agree with the effective due date. The Committee reserves the right to authorize extensions of Rule-required Special Periodical Surveys under extreme circumstances.

Each part (item) surveyed becomes due again for survey approximately five years from the date of the survey. For Continuous Surveys, a suitable notation will be entered in the *Record* and the date of completion of the cycle published. If any defects are found during the survey, they are to be dealt with to the satisfaction of the Surveyor.

### 9.3

At a survey approximately four years after each Continuous Survey of Hull has been credited, thickness gaugings, as required for the forthcoming Special Periodical Survey, that are accessible are to be taken.

## 11 Reactivation Surveys

In the case of drilling units which have been out of service for an extended period, the requirements for surveys on reactivation will be specially considered in each case with due regard being given to the status of surveys at the time of the commencement of the lay-up period, the length of the period and conditions under which the unit had been maintained during that period.

## 13 Partially Complete Surveys

When a Survey is partially complete, the Surveyor is to report immediately upon the work done in order that Owners and the Committees may be advised of the parts still to be surveyed.

## 15 Alterations

No alterations which affect or may affect classification or the assignment of load lines are to be made to the hull or machinery of a classed unit unless plans of the proposed alterations are submitted and approved by the ABS Technical Office before the work of alterations is commenced, and such work, when approved, is to be carried out to the satisfaction of the Surveyor. Nothing contained in this section or in a rule or regulation of any government or other administration or the issuance of any report or certificate pursuant to this section or such a rule or regulation is to be deemed to enlarge upon the representations expressed in subsections 1-1-1/1 through 1-1-1/7 hereof and the issuance and use of any such reports or certificates are to in all respects be governed by subsections 1-1-1/1 through 1-1-1/7 hereof.

## 17 Welding and Replacement of Materials

### 17.1 Ordinary and Higher-Strength Structural Steels

Welding or other fabrication performed on the structural steels listed in 2-1-2/Table 5 and 2-1-3/Table 5 is to be in accordance with the requirements in Section 2-4-1 of the *ABS Rules for Materials and Welding – Part 2*.

### 17.3 Special Materials

Welding or other fabrication performed on other steels of special characteristics or repairs or renewals of such steel or adjacent to such steel is to be accomplished with procedures approved for the special materials involved. The procedures are to be in accordance with the information provided under Section 1-1-9 and Chapter 4 of the *ABS Rules for Materials and Welding – Part 2*. Substitution of steels differing from those originally installed is not to be made without approval.

## 19 Drydocking Survey or Equivalent (1992)

### 19.1 Interval

For units operating in salt water, a Drydocking Survey is to be carried out two times in any five year period with an interval not exceeding three years between Drydocking Surveys.

For units operating in salt water for less than six months each year, the maximum interval is not to exceed three years. For units operating solely in fresh water, the interval between Drydocking Survey is not to exceed five years.

Consideration may be given to special circumstances which may justify an extension of the interval. An underwater inspection by a diver may be required for such extensions.

### 19.3 Underwater Inspection in Lieu of Drydocking Survey

Underwater inspection by diver equivalent to a Drydocking Survey may be carried out at each Drydocking Survey up to and including Special Survey No. 4. The underwater inspection is to be carried out in accordance with this Section and Appendix 5-1-A1 of these Rules.

For each drydocking after Special Survey No. 4, requests to carry out an Underwater Inspection in Lieu of Drydocking in accordance with previously approved plans are to be submitted for consideration well in advance of the proposed survey. Approvals to carry out the Underwater Inspection in Lieu of Drydocking after Special Survey No. 4 are to be made available onboard for the Surveyor's reference.

### 19.5 Parts to be Examined

#### 19.5.1 Surface-type Units (ship or barge type units)

External surfaces of the hull, keel stem, stern frame, rudder, nozzles and sea strainers are to be selectively cleaned and examined together with appendages, the propeller, exposed parts of stern bearing assembly, rudder pintle and gudgeon securing arrangements, sea chests and strainers and their fastenings. Propeller shaft bearing, rudder bearing and steering nozzle clearances are to be ascertained and reported upon.

#### 19.5.2 Self-Elevating Units

External surfaces of the upper hull or platform, spud cans, mat, underwater areas of legs, together with their connections, as applicable, are to be selectively cleaned and examined.

At each Drydocking Survey (or equivalent) after Special Survey No. 2, the satisfactory condition of the internal structure of the mat or spud cans, as accessible, is to be verified.

Leg connections to mat and spud cans are to be nondestructively tested and examined at each Drydocking Survey. Nondestructive testing may be required of areas found to be suspect.

### 19.5.3 Column-Stabilized Units

External surfaces of the upper hull or platform, footings, pontoons or lower hulls, underwater areas of columns, bracing and their connections, as applicable, are to be selectively cleaned and examined.

Nondestructive testing may be required of areas found to be suspect.

Sea chests and strainers are to be cleaned and examined.

External portions of propulsion units are to be examined.

### 19.5.4 Ballast and Preload Spaces – All units

In conjunction with Drydocking Surveys (or equivalent) after Special Survey No. 1 and between subsequent Special Surveys, the following ballast and preload spaces are to be internally examined and the effectiveness of coatings or corrosion control arrangements are to be verified either visually, by indicator strips or by thickness gauging (as considered necessary), placed in satisfactory condition, as found necessary, and reported upon.

*19.5.4(a) For Surface-type Units.* One peak tank and at least two other representative ballast tanks between the peak bulkheads used primarily for water ballast.

*19.5.4(b) Self-Elevating Units.* Representative ballast tanks or free-flooding compartments in mat or spud cans, if accessible, and at least two representative upper hull salt water tanks on mat supported units or two representative preload tanks on independent leg units.

*19.5.4(c) For Column-Stabilized Units.* Representative ballast tanks in footings, lower hulls or free-flooding compartments as accessible, and at least two ballast tanks in columns or upper hull, if applicable.

### 19.5.5 All Units

*19.5.5(a) Internal Examinations of Tanks and Voids.* All tanks and voids which are to be internally examined are to be thoroughly ventilated and gas-freed prior to being entered and are to be carefully monitored for pocketing or emissions of hazardous gases during examination.

*19.5.5(b) Sea Valves.* For Underwater Inspection in Lieu of Drydocking Survey associated with Special Surveys, means are to be provided to permit the opening up of all sea valves for internal examination.

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PART

# 5

CHAPTER      **1      Surveys After Construction**

SECTION      **2      Corrosion Control Systems**

The type, location and extent of corrosion control (i.e., coatings, cathodic protection systems, etc.) as well as effectiveness, and repairs or renewals should be reported on at each survey. Particular attention is to be given to corrosion control systems in ballast tanks, free-flooding areas and other locations subjected to sea water from both sides.

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PART

# 5

CHAPTER **1 Surveys After Construction**

SECTION **3 Annual Surveys**

**1 Parts to be Examined – Hull**

At each Annual Survey, the exposed parts of the hull, the deck, deck houses, structures attached to the deck, derrick substructure, including supporting structure, accessible internal spaces and the applicable parts listed in 5-1-3/1.1 through 5-1-3/1.7 below are to be generally examined and placed in satisfactory condition as found necessary.

**1.1 All Types of Mobile Offshore Drilling Units**

**1.1.1**

Hatchways, manholes and other openings in freeboard deck (bulkhead deck) and enclosed-superstructure decks.

**1.1.2**

Machinery casings and covers, companionways and deck houses protecting openings in freeboard or enclosed-superstructure decks.

**1.1.3**

Portlights together with deadcovers, cargo ports, bow or stern entries, chutes and similar openings in hull sides or ends, below the freeboard deck or in way of enclosed superstructures.

**1.1.4**

Ventilators, tank vent pipes together with flame screens, and overboard discharges from enclosed spaces on or below the freeboard deck.

**1.1.5**

Watertight bulkheads and end bulkheads of enclosed superstructures.

**1.1.6**

Closing appliances for all of the above, including hatch covers, doors, check valves, together with their respective securing devices, dogs, sills, coamings and supports.

**1.1.7**

Freeing ports together with bars, shutters and hinges.

**1.1.8**

Protection of the crew, guard rails, lifelines, gangways and deck houses accommodating crew.

### 1.3 Surface-Type Units

The hull and deck structure around the drilling well (moon pool) and in vicinity of any other structural changes-in-section, slots, steps or openings in the deck or hull, and the back-up structure in way of structural members or sponsors connecting to the hull.

### 1.5 Self-Elevating Units

Jackhouse structures and attachment to upper hull or platform. Jacking or other elevating systems and leg guides, externally. Legs as accessible above the waterline. Plating and supporting structure in way of leg wells.

### 1.7 Column-Stabilized Units

Columns, diagonals and other parts of the upper columns, diagonals and other parts of the upper hull supporting structure as accessible above the waterline.

## 3 Alterations and Position of Load Lines

The Surveyors are to be satisfied at each Annual Survey that no material alterations have been made to the unit, its structural arrangements, subdivision, superstructure, fittings and closing appliances upon which the load line assignment is based.

## PART

# 5

## CHAPTER **1 Surveys After Construction**

## SECTION **4 Survey Pre-planning**

### **1 Special Surveys**

Plans and procedures for Special Surveys are to be made available onboard for the purpose of carrying out an onboard pre-planning of the survey with the Surveyor. These should include nomenclature of hull structural parts and drawings or forms for laying out the areas to be surveyed, the extent of hull cleaning, nondestructive testing locations (including methods of NDT) and for mapping damage or deterioration found.

### **3 Underwater Inspection in Lieu of Drydocking**

Plans and procedures for Underwater Inspection in Lieu of Drydocking are to be submitted for review and an approved copy of the plan is to be maintained onboard for the purpose of carrying out an onboard pre-planning of the survey with the Surveyor. Plans are to be submitted in triplicate and should include nomenclature of underwater parts and drawings or forms for laying out areas to be surveyed, the extent of hull cleaning, nondestructive testing locations (including NDT methods) and for mapping damage or deterioration found. The examination of items associated with Special or Continuous Surveys and Tail Shaft Surveys is to be included in the submitted plans. Subsequent modifications made to the approved plans are required to be resubmitted for consideration.

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## PART

# 5

## CHAPTER 1 Surveys After Construction

## SECTION 5 Special Surveys – Hull

### 1 Special Survey No. 1 – Hull

(1996) Special Survey No. 1 of Hull is to include compliance with the foregoing Annual Survey and Drydocking Survey requirements and, in addition, the following requirements as listed below are to be carried out, as applicable, the parts examined, placed in satisfactory condition and reported upon. Nondestructive examination may be required of suspect areas.

#### 1.1 General – All Drilling Units

##### 1.1.1

The hull or platform structure, including tanks, watertight bulkheads and decks, cofferdams, void spaces, sponsons, chain lockers, duct keels, helicopter pad, machinery spaces, peak spaces, steering gear spaces and all other internal spaces are to be examined externally and internally for damage, fractures or excessive wastage. Thickness gauging of plating and framing may be required where wastage is evident or suspected.

##### 1.1.2

All tanks, compartments and free-flooding spaces throughout the drilling unit are to be examined externally and internally for excess wastage or damage. Internal examination of spud cans and mats is to be specially considered. Watertight integrity of tanks, bulkheads, hull, bulkhead deck and other compartments is to be verified by visual inspection. Suspect areas may be required to be tested for tightness, nondestructive tested or thickness gauged. Tanks and other normally-closed compartments are to be ventilated, gas-freed and cleaned as necessary to expose damage and allow for a meaningful examination for excessive wastage. Internal examination and testing of void spaces, compartments filled with foam or corrosion inhibitors, and tanks used only for lube oil, light fuel oil, diesel oil or other noncorrosive products may be waived, provided that upon a general examination, the Surveyor considers their condition to be satisfactory. External thickness gauging may be required to confirm corrosion control.

##### 1.1.3

Attachments of anchor racks and anchor cable fairleads are to be examined. For drilling units with symbol Ⓔ anchors, cables and their respective handling means are to be examined.

##### 1.1.4

Structures such as derrick substructure and supporting structure, jackhouses, pipe racks, deck houses, superstructures, helicopter landing areas, raw water (seawater intake) towers and their respective attachments to the deck or hull.

## 1.1.5

Foundations and supporting headers, brackets and stiffeners for drilling-related apparatus, where attached to hull, deck, superstructure or deck house.

## 1.1.6

Survey of parts of the unit which are underwater and inaccessible to the Surveyor may be accepted on the basis of an examination by a qualified diver carried out in the presence of the Surveyor. Video or photo records, nondestructive testing and thickness gauging may be required in addition to the diver's report. Refer to Appendix 5-1-A1 of these Rules.

## 1.1.7 (1992)

At each Special Survey, thickness gaugings are to be carried out where wastage is evident or suspected. At Special Survey No. 2 and subsequent Special Surveys, representative gaugings will be required in accordance with 5-1-5/Table 1, 5-1-5/Table 2 and 5-1-5/Table 3. Special attention should be paid to splash zones on hulls, legs or related structure, and in ballast tanks, pre-load tanks, free-flooded spaces, spud cans and mats. The thickness gauging requirements indicated in the tables may be reduced or increased as deemed appropriate or necessary by the Surveyor in accordance with notes 2 and 3 of the tables.

## 1.1.8

Where inspection of underwater joints is required, sufficient cleaning is to be carried out in way, and water clarity to be adequate, to permit meaningful visual, video, camera or NDT examination, as required. Every effort should be made to avoid cleaning damage to special coatings.

### 1.3 Surface-type Units

## 1.3.1

Structural appendages and ducts for positioning units. Refer also to the latest edition of the *ABS Rules for Survey After Construction – Part 7*, as applicable to vessels constructed in accordance with the *Rules for Building and Classing Steel Vessels*.

### 1.5 Self-Elevating Units

## 1.5.1

All legs, including chords, braces, diagonals, gussets, racks, joints, together with leg guides are to be examined. Tubular or similar type legs are to be examined externally and internally, together with internal stiffeners and pinholes, as applicable.

## 1.5.2

Structure in, around and under jackhouses and leg wells.

## 1.5.3

Leg jacking or other elevating systems externally.

## 1.5.4

Leg connections to bottom mats or spud cans, including nondestructive testing of leg connections to mats or spud cans.

## 1.5.5

Jetting piping systems or other external piping, particularly where penetrating mats or spud cans.

#### 1.5.6

Spud cans or mat.

*Note:* Spud cans and other bottom spaces subject to contact with, or accumulation of, bottom soil should be thoroughly ventilated and carefully monitored for pocketing or emission of hazardous gases prior to, and during, internal inspection.

Where the spud cans or mat are partly or entirely obscured below the mud line when the Special Survey is otherwise being completed, consideration will be given to postponement of these examinations until the next rig move.

### 1.7 Column-Stabilized Units (1996)

Connections of columns and diagonals to upper hull or platform and lower hull or pontoons. Joints of supporting structure, including diagonals, braces and horizontals, together with gussets and brackets. Internal continuation or back-up structure for the above.

## 3 Special Survey No. 2 and Subsequent

These surveys are to be at least as comprehensive as Special Survey No. 1, with special attention being given to the condition and thickness of material in high corrosion areas. The subsequent Special Surveys of ship or barge type units will include the requirements of the latest edition of the ABS *Rules for Survey After Construction – Part 7*, as applicable to vessels constructed in accordance with the *Rules for Building and Classing Steel Vessels*.

**TABLE 1**  
**Thickness Gauging Requirements for Surface-Type Units (1992)**

<i>Special Periodical Survey Number 1</i>	<i>Special Periodical Survey Number 2</i>	<i>Special Periodical Survey Number 3</i>	<i>Special Periodical Survey Number 4</i>
1) Suspect areas throughout the vessel	1) Suspect areas throughout the vessel 2) One transverse section of deck plating abreast the moon pool opening within the amidships 0.5L, together with internals in way as deemed necessary. Where vessel is configured with side ballast tanks, the plating and internals of the tanks are also to be gauged in way of the section chosen. 3) Moon pool boundary bulkhead plating.	1) Suspect areas throughout the vessel 2) Two girth belts of deck, bottom and side plating abreast the moon pool and one hatch opening within the amidships 0.5L together with internals in way as deemed necessary. Where vessel is configured with side ballast tanks, the plating and internals of the tanks to be gauged in way of the required belts, Remaining internals in ballast tanks to be gauged as deemed necessary. 3) Moon pool boundary bulkhead plating. 4) Internal in forepeak tank as deemed necessary.	1) Suspect areas throughout the vessel 2) A minimum of three girth belts of deck, bottom, side, and longitudinal-bulkhead plating in way of the moon pool and other areas within the amidships 0.5L, together with internals in way (including in perimeter ballast tanks, where fitted in way of belts). 3) Moon pool boundary bulkhead plating. 4) Internals in forepeak and after peak tanks as deemed necessary. 5) Lowest strake of all transverse bulkheads in hold spaces. Remaining bulkhead plating to be gauged as deemed necessary. 6) All plates in two wind and water strakes, port and starboard, full length. 7) All exposed main deck plating full length and all exposed first-tier super-structure deck plating (poop, bridge and forecastle decks). 8) All keel plates full length plus additional bottom plating as deemed necessary by the Surveyor, particularly in way of cofferdams and machinery spaces. 9) Duct keel or pipe tunnel plating or pipe tunnel plating and internals as deemed necessary.

*Notes:*

- 1 With reference to ballasting history and arrangement and condition of coatings, tanks and specific thickness gauging locations should be selected which will provide the best representative sampling of areas likely to be most exposed to corrosion effect.
- 2 Gauging requirements noted may be modified as deemed necessary or appropriate by the Surveyor if the structure remains effectively protected against corrosion by a permanent type special coating.
- 3 In any case where excessive wastage is evident, additional gaugings may be required.



**TABLE 2**  
**Thickness Gauging Requirements for Self-Elevating Units (1992)**

<i>Special Periodical Survey Number 1</i>	<i>Special Periodical Survey Number 2</i>	<i>Special Periodical Survey Number 3</i>	<i>Special Periodical Survey Number 4</i>
1) Suspect areas throughout the unit (particular attention to be paid to the legs in way of the Splash Zone).	1) Suspect areas throughout the unit. 2) Legs in way of Splash Zone. 3) Primary application structures where wastage is evident. 4) Representative gaugings of upper hull deck and bottom plating and internals of one preload (ballast) tank.	1) Suspect areas throughout the unit. 2) Representative gaugings, throughout, of special and primary application structures. 3) Leg well structure. 4) Representative gaugings of deck, bottom, and side shell plating of hull and mat. 5) Representative gaugings of upper hull deck and bottom plating and internals of at least two preload (ballast) tanks.	1) Suspect areas throughout the unit. 2) Comprehensive gaugings, throughout, of special and primary application structures. 3) Leg well structure. 4) Representative gaugings of deck, bottom, and side shell plating of hull and mat. 5) Substructure of derrick as deemed necessary. 6) Representative gaugings of internals of all preload (ballast) tanks.

*Notes:*

- 1 With reference to the operating history and arrangement and condition of coatings, specific thickness gauging locations should be selected which will provide the best representative sampling of areas likely to be most exposed to corrosion effect.
- 2 Gauging requirements noted may be modified as deemed necessary or appropriate by the Surveyor if the structure remains effectively protected against corrosion by a permanent type special coating.
- 3 In any case where excessive wastage is evident, additional gaugings may be required.
- 4 Structural application designation (special, primary, secondary) are defined in 3-1-3/5.

**TABLE 3**  
**Thickness Gauging Requirements for Column-Stabilized Units (1992)**

<i>Special Periodical Survey Number 1</i>	<i>Special Periodical Survey Number 2</i>	<i>Special Periodical Survey Number 3</i>	<i>Special Periodical Survey Number 4</i>
1) Suspect areas throughout the unit. 2) Columns and bracings where wastage is evident in Splash Zone.	1) Suspect areas throughout the unit. 2) Representative gaugings of columns and bracings in Splash Zone together with internals in way as deemed necessary. 3) Special and primary application structure where wastage is evident.	1) Suspect areas throughout the unit. 2) Representative gaugings, throughout, of special and primary application structures. 3) 1 girth belt of each of 2 columns and 2 bracings in Splash Zone together with internals in way as deemed necessary. 4) Chain locker internals as deemed necessary. 5) Lower hulls in way of mooring lines where wastage is evident. 6) 1 girth belt of each lower hull between one set of columns.	1) Suspect areas throughout the unit. 2) Comprehensive gaugings, throughout, of special and primary application structures. 3) 1 girth belt of each of one-half of the columns and bracings in Splash Zone and internals in way as deemed necessary (i.e., gauge half of the unit's columns and bracings in Splash Zone). 4) Chain locker internals as deemed necessary. 5) Lower hulls in way of mooring lines where wastage is evident. 6) 1 girth belt of each lower hull between one set of columns. 7) Representative gaugings of substructure of drilling derrick.

*Notes:*

- 1 With reference to the ballasting history and arrangement and condition of coatings, tanks and specific thickness gauging locations should be selected which will provide the best representative sampling of areas likely to be most exposed to corrosion effect.
- 2 Gauging requirements noted may be modified as deemed necessary or appropriate by the Surveyor if the structure remains effectively protected against corrosion by a permanent type special coating.
- 3 In any case where excessive wastage is evident, additional gaugings may be required.
- 4 Structure application designations (special, primary, secondary) are defined in 3-1-3/5.

## PART

# 5

## CHAPTER **1 Surveys After Construction**

## SECTION **6 Specific Survey on Self-Elevating Units After Ocean Transit Tow**

A specific survey is to be carried out on self-elevating drilling units after the completion of an ocean transit tow. This survey should be carried out prior to elevating the unit and should include a comprehensive visual examination of the structure, including helicopter support structure, as well as surface nondestructive examination of critical locations. If the survey is carried out by the Owner and damage is found which affects or may affect classification, the Bureau is to be notified and arrangements are to be made for survey. If the survey is carried out by the Owner and no damages are found which affect or may affect classification, the Bureau is to be advised of the details of the tow, and a confirmation survey will be made at the next periodical survey.

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PART

# 5

CHAPTER     **1     Surveys After Construction**

SECTION     **7     Annual Surveys – Machinery**

**1     Self-Propelled Units (1996)**

On self-propelled units, a general examination in accordance with Section 7-6-2 of the *Rules for Survey After Construction – Part 7* should be made of engines, boilers, steering machinery, windlass, auxiliary machinery, pumps, piping, electrical installations, including those in hazardous areas, and fire-extinguishing apparatus required for classification as outlined in Section 4-4-1 of these Rules.

**3     Non-Self-Propelled Units (1996)**

On non-self-propelled units, a general examination is to be made of items required for classification such as auxiliary machinery, pumps, piping, electrical installations, including those in hazardous areas, and fire-extinguishing apparatus as outlined in Section 4-4-1 of these Rules. Fire mains are to undergo satisfactory pressure testing.

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## PART

# 5

## CHAPTER 1 Surveys After Construction

## SECTION 8 Special Periodical Surveys – Machinery

### 1 Correlation with Hull Special Surveys

Main and auxiliary engines of all types for drilling units are to undergo Special Periodical Survey at intervals similar to those for Special Surveys on the Hull in order that both may be recorded at approximately the same time. In cases where damage has involved extensive repairs and examination, the survey thereon may be considered as equivalent to a Special Periodical Survey.

### 3 Parts to be Examined

On self-propelled units, in addition to the requirements for Annual Survey, the main and auxiliary machinery, including pressure vessels, should be surveyed in accordance with the requirements of the latest edition of the *ABS Rules for Survey After Construction – Part 7*, as applicable to vessels constructed in accordance with the *Rules for Building and Classing Steel Vessels*, and the following, as applicable.

On non-propelled units, in addition to the requirements for Annual Survey, at each Special Periodical Survey, special attention is to be given to the following requirements, as applicable.

#### 3.1

All openings to the sea, including sanitary and other overboard discharges together with the cocks and valves connected therewith, are to be examined internally and externally while the drilling unit is in drydock or at the time of underwater examination in lieu of drydocking, and the fastenings to the shell plating are to be renewed when considered necessary by the Surveyor.

#### 3.3

Pumps and pumping arrangements, including valves, cocks, pipes, and strainers, are to be examined. Nonmetallic flexible expansion pieces in the main salt-water circulating system are to be examined internally and externally. The Surveyor is to be satisfied with the operation of the bilge and ballast systems. Other systems are to be tested as considered necessary.

#### 3.5

The foundations of machinery are to be examined.

### 3.7

Heat exchangers and other unfired pressure vessels (except those used solely for drilling operations and complying with a recognized standard) with design pressures over 0.7 bar (7 kgf/cm<sup>2</sup>, 100 psi) are to be examined, opened out or thickness gauged and pressure tested as considered necessary, and associated relief valves proven operable. Evaporators that operate with a vacuum on the shell need not be opened, but may be accepted on the basis of satisfactory external examination and operational test or review of operating records

## 5 Units with Propulsion-Assist or Dynamic Position Certification

Propulsion-assist and dynamic positioning equipment will be surveyed on the basis of “Special Periodical Surveys – Machinery” in accordance with the requirements of the *ABS Rules for Survey After Construction – Part 7*.

## 7 Special Features (All Types)

Mobile offshore drilling units may have many items of machinery and electrical equipment not found on conventional cargo vessels. Certain of these items are required for classification even if the unit is without propulsion machinery. Items to be especially examined and reported upon at all Special Surveys are as follows.

### 7.1 Hazardous Areas

Enclosed hazardous areas such as those containing open active mud tanks, shale shakers, degassers and demanders are to be examined and doors and closures in boundary bulkheads verified as effective. Electric lighting, electrical fixtures and instrumentation are to be examined, proven satisfactory and verified as explosion-proof or intrinsically safe. Ventilating systems, including ductwork, fans, intake and exhaust locations for enclosed restricted areas, are to be examined, tried out and proven satisfactory. Ventilating-air alarm system is to be proven satisfactory. Electric motors are to be examined, including closed-loop ventilating systems for large DC motors. Automatic power disconnect to motors in case of loss of ventilating air are to be proven satisfactory.

### 7.3 Remote Shutdown Arrangements (1996)

Remote shutdown arrangements for fuel-oil transfer service pumps and ventilating equipment, together with oil tank outlet valves, where capable of being remotely closed, are to be proven satisfactory. Emergency switches, where required by the Rules, for all electrical equipment, including main and emergency generators, except alarm and communication systems and lighting in vital areas such as escape routes and landing platforms, are to be proven satisfactory.

### 7.5 Fire Fighting Apparatus

A general examination of the fire detection and extinguishing apparatus is to be made in order that the Surveyor may be satisfied as to its efficient state. The following items are to be especially examined.

- Fire hoses, nozzles and spanners at each fire station
- Servicing of all portable soda-acid and foam extinguishers
- Weighing and recharging, as necessary, of all dry chemical and CO<sub>2</sub> extinguishers
- Fire pumps and piping, including operation and capacity
- Alarm systems



## **7.7 Column Jacking Systems**

On self-elevating type drilling units, leg jacking systems are to be examined and reported on. Pinions and gears of the climbing pinion gear train of rack and pinion systems are to be examined as far as practicable, to the Surveyor's satisfaction, by an effective crack detection method.

## **7.9 Piping Systems**

Piping systems used solely for drilling operations and complying either with these Rules or a recognized standard as required by 4-2-1/1 are to be examined, as far as practical, operationally or hydrostatically tested to working pressure, to the satisfaction of the Surveyor.

## **7.11 Miscellaneous**

Bilge alarm system, if fitted, is to be tested and proven satisfactory.

# **9 Retractable Propulsion Thrusters**

The component parts of oil-lubricated retractable propulsion thrusters are to be opened for examination at least every five years.

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PART

**5**

CHAPTER

**1 Surveys After Construction**

SECTION

**9 Tail Shaft Surveys**

Surveys are to be carried out in accordance with applicable paragraphs of the latest edition of the ABS *Rules for Survey After Construction – Part 7*, as applicable to vessels constructed in accordance with the *Rules for Building and Classing Steel Vessels*. However, due to low running hours on tailshafts of Mobile Offshore units, the interval between tailshaft surveys may be extended based on the following being to the satisfaction of the Surveyor:

- i) Diver's external examination of stern bearing and outboard seal area, including wear-down check as far as is possible.
- ii) Internal examination of the shaft area (inboard seals) in propulsion room(s).
- iii) Confirmation of lubricating oil records (satisfactory oil loss rate, no evidence of unacceptable contamination).
- iv) Shaft seal elements are examined/replaced in accordance with seal manufacturer's recommendations.

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## PART

# 5

## CHAPTER 1 Surveys After Construction

### SECTION 10 Boiler Surveys

#### 1 Survey Interval

Waste-heat or fired auxiliary boilers used for the operation of the unit, excluding those intended solely for hotel load, are to be surveyed at intervals not exceeding 2½ years. However, where requested by the Owner and after an external examination of the boilers and review of operating and feedwater records, an extension of the auxiliary or waste-heat boiler surveys of up to six months may be granted.

#### 3 Parts to be Examined

##### 3.1

At each survey, the boilers, superheaters and economizers are to be examined internally (water-steam side) and externally (fire side).

##### 3.3

Boiler mountings and safety valves are to be examined at each survey and opened as considered necessary by the Surveyor.

##### 3.5

The proper operation of the safety valves is to be confirmed at each survey.

##### 3.7

When considered necessary by the Surveyors, the boilers and superheaters are to be subjected to hydrostatic pressure test.

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## PART

# 5

## CHAPTER 1 Surveys After Construction

### SECTION 11 Electrical Equipment

#### 1 Timing of Survey

The entire installation, including auxiliary and emergency equipment, is to undergo Special Periodical Survey every five years at the same time as the Special Survey on the machinery. The requirements of 5-1-11/3 and 5-1-11/5 are to be carried out at each Special Periodical Survey.

#### 3 Parts to be Examined

##### 3.1

Fittings and connections on main switchboards and distribution panels are to be examined, and care is to be taken to see that no circuits are overfused.

##### 3.3

Cables are to be examined as far as practicable without undue disturbance of fixtures.

##### 3.5

All generators are to be run under load, either separately or in parallel; switches and circuit breakers are to be tested.

##### 3.7

All equipment and circuits are to be inspected for possible development of physical changes or deterioration. The insulation resistance of the circuits is to be measured between conductors and between conductors and ground and these values compared with those previously measured. Any large and abrupt decrease in insulation resistance is to be further investigated and either restored to normal or renewed as indicated by the conditions found.

##### 3.9

The specified electrical auxiliaries for vital purposes, generators and motors are to be examined and their prime movers opened for inspection. The insulation resistance of each generator and motor is to be measured.

## 5 Main Propulsion Apparatus

The windings of generators and motors are to be thoroughly examined and found or made dry and clean. Particular attention is to be paid to the ends of the windings of stator and rotors. After the winding have been cleaned and found dry, they are to be varnished, if necessary, with a standard insulating varnish applied preferably by spraying.

## 7 Major Repairs

On the occasion of major repairs, the coils repaired or renewed are to be subjected to a dielectric strain test, as specified under the applicable parts of Part 4, Chapter 3. In addition, the circuits containing the repairs or renewals and coils which have been disturbed during repairs are to be subjected to dielectric strain tests for one minute by application of a potential of 125% of the maximum operating voltage of the circuits to which it is applied. The direct current fields of generators and motors are to be subjected for one minute to a test potential equal to 50% of the value specified under the applicable parts of Part 4, Chapter 3 and the whole apparatus operated under full load conditions.



## PART

# 5

## CHAPTER 1 Surveys After Construction

## SECTION 12 Automatic and Remote-control Systems

### 1 Annual Survey

At twelve month intervals from the date of installation, a survey is to be carried out during which a general examination of the automatic and remote-control system is to be made. The examination is to be made with a generator in operation and the control system energized to permit random checking of function indicators, alarms and such control actuators as may be operational. The Surveyor is to examine the machinery records to check the performance of the control system throughout the period since the last survey and to establish if there has been any abnormal functioning or failures and what corrective measures had been taken to preclude their recurrence. The machinery-space fire-detecting and bilge water-level alarms are to be checked for performance.

### 3 Special Periodical Surveys

Special periodical surveys are to be carried out at intervals of five years from the date of installation and are to include compliance with all requirements for Annual Surveys and with those that follow.

#### 3.1 Control Actuators

All mechanical, hydraulic and pneumatic control actuators and their power systems are to be examined and tested as considered necessary.

#### 3.3 Electrical

The insulation resistance of the windings of electrical control motors or actuators is to be measured, with all circuits of different voltages above ground being tested separately, and is to be on the order of one-half to one megohm.

#### 3.5 Unattended Plants

Control systems for unattended machinery spaces are to be subjected to dock trials at reduced power on the propulsion engine to check the proper performance of all automatic functions, alarms, and safety systems.

### 5 Repairs or Alterations

Major repairs or alterations to the automatic and remote-control systems are to be made, in accordance with approved plans, under the supervision and to the satisfaction of the Surveyor.

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## PART

# 5

## CHAPTER 1 Surveys After Construction

## APPENDIX 1 Underwater Inspection in Lieu of Drydocking

### 1 General

Following are the procedures and conditions under which a properly conducted underwater inspection may be credited as a Drydocking Survey.

### 3 Conditions

#### 3.1 Limitations

Underwater Inspection in lieu of Drydocking Survey may not be acceptable where there is record of abnormal deterioration or damage to the underwater structure, or where damage affecting the fitness of the unit is found during the course of the survey.

#### 3.3 Thickness Gauging and Nondestructive Testing

Underwater or internal thickness gaugings of suspect areas may be required in conjunction with the underwater inspection. Means for underwater nondestructive testing may also be required for fracture detection.

#### 3.5 Plans and Data

Approved plans and procedures for the survey are to be made available onboard for the purpose of carrying out an onboard preplanning of the survey with the Surveyor. These should include nomenclature of underwater parts and drawings or forms for laying out the areas to be surveyed, the extent of hull cleaning, nondestructive testing locations (including NDT methods) and for mapping damage or deterioration found. The examination of items associated with the Special or Continuous Surveys and Tailshaft Surveys is to be included in the plans.

For each drydocking after Special Survey No. 4, requests to carry out an Underwater Inspection in Lieu of Drydocking in accordance with the previously approved plans are to be submitted for consideration well in advance of the proposed survey. Approvals to carry out the Underwater Inspection in Lieu of Drydocking after Special Survey No. 4 are to be made available onboard for the Surveyors' reference.

#### 3.7 Underwater Conditions

The areas to be surveyed are to be sufficiently clean and the sea water clear enough to permit meaningful examination and photography (if necessary) by the diver. Overall or spot cleaning may be required by the attending Surveyor.

## 5 Physical Features

The following physical features are to be incorporated into the unit's design in order to facilitate the underwater inspection. When verified, they will be noted in the unit's Classification for reference at subsequent surveys.

### 5.1 Stern Bearing

For self-propelled units, means are to be provided for ascertaining that the seal assembly on oil-lubricated bearings is intact and for verifying that the clearance or wear-down of the stern bearing is not excessive. For oil-lubricated bearings, this may only require accurate oil-loss-rate records and a check of the oil for contamination by sea water or white metal. For wood or rubber bearings, an opening in the top of the rope guard and a suitable gauge or wedge would be sufficient for checking the clearance by a diver. For oil-lubricated metal stern bearings, wear-down may be checked by external measurements between an exposed part of the seal unit and the stern tube bossing, or by use of the unit's wear-down gauge, where the gauge wells are located outboard of the seals, or the unit can be tipped. For use of the wear-down gauges, up-to-date records of the base depths are to be maintained onboard. Whenever the stainless steel seal sleeve is renewed or machined, the base readings for the wear-down gauge are to be re-established and noted in the unit's records and in the survey report.

### 5.3 Rudder Bearings

For self-propelled units with rudders, means and access are to be provided for determining the condition and clearance of the rudder bearings, and for verifying that all parts of the pintle and gudgeon assemblies are intact and secure. This may require bolted access plates and a measuring arrangement.

### 5.5 Sea Suctions

Means are to be provided to enable the diver to confirm that the sea suction openings are clear. Hinged sea suction grids would facilitate this operation.

### 5.7 Sea Valves

For the Drydocking Survey (Underwater Inspection) associated with the Special Survey, means must be provided to examine any sea valve.

## 7 Procedures

### 7.1 Exposed Areas

An examination of the outside of the structure above the waterline is to be carried out by the Surveyor. Means and access are to be provided to enable the Surveyor to accomplish visual inspection and nondestructive testing, as necessary.

### 7.3 Underwater Areas

An examination of the entire unit below the waterline is to be carried out by a suitably qualified diver using closed-circuit television with two-way communication capable of being monitored by the Surveyor, as required, or photographic documentation, or both, depending on the age and type of unit. This is to be supplemented by the Diver's Report, describing and attesting to the conditions found. A copy of this diver's report and pertinent photographs are to be submitted to the attending Surveyor for retention at the local office for 5 years. Copies are also to be retained onboard, together with any video tapes, for reference.

## 7.5 Damage Areas

Damage areas are to be photographed. Internal examination, measurements, marking and thickness gauging of such locations may be a necessary adjunct as determined by the attending Surveyor. Means are to be provided for locating, orienting and identifying underwater surfaces in photographs or on video tapes.

## 9 Alternatives

The Bureau is prepared to consider alternatives to the above guidelines and would be pleased to consult with interested clients concerning means and details for accomplishing results no less effective.

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