Propeller Shaft and Stern Tube Shaft Surveys

Amended Guidance

Guidance for the Survey and Construction of Steel Ships Part B
Guidance for High Speed Craft
Guidance for the Survey and Construction of Inland Waterway Ships

Reason for Amendment

IACS Recommendation (Rec.) No.36 specifies recommended procedures for analysing stern tube lubricating oil degradation. It covers not only more traditional and commonly used mineral-based lubricants, but also more recently developed Environmentally Acceptable Lubricants (EAL). These requirements have already been incorporated into the NK Rules.

Although IACS Rec. No.36 specifies that EAL degradation can be confirmed through the periodical oil analysis involving the observation of trends in TAN (total acid number), viscosity and colour change, etc., it does not specify any detailed procedures for observing TAN trends.

IACS, therefore, adopted an amendment to IACS Rec. No.36 as IACS Rec. No.36(Rev.3) in November 2020 to specify that observations of TAN trends are to be made based on limits defined by oil makers.

Accordingly, relevant requirements were amended based upon IACS Rec. No.36(Rev.3).

Outline of Amendment

Amended relevant requirements to specify that observations of TAN trends are to be made based on the limits defined by oil makers.

“Guidance for the survey and construction of steel ships” has been partly amended as follows:

Part B CLASS SURVEYS

B8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

B8.1 Propeller Shaft and Stern Tube Shaft Surveys

B8.1.2 Partial Surveys

Sub-paragraph -1(2) has been amended as follows.

1 The “reference standards deemed appropriate by the Society” referred to in **8.1.2-1(2)(b)i), Part B of the Rules** means the reference standards specified in the following **(1)** and **(2)**:

(1) (Omitted)

(2) The following **(a)** and **(b)** upper limits for IR Oxidation and separated water; however, in the case of environmentally acceptable lubricants (EAL), regardless of the following **(a)**, observation of any trends (such as TAN (total acid number), viscosity and change in colour etc.) based on periodical oil analysis ~~can~~ may be made. In such cases, observations of TAN trends are to be made based on sequential analysis in conjunction with limits for continued use in service defined by oil makers.

(a) IR oxidation @ 5.85μm: 10 (*Abs.unit*/*cm*)

(b) Separated water: 1.0 *%*

Table B8.1.3-1 has been amended as follows.

Table B8.1.3-1 Approval Procedure of Preventive Maintenance System for Oil Lubricated Propeller Shafts

Item	Procedures
1 General	(Omitted)
2 Application	(Omitted)
3 Approval and Notation	(Omitted)
4 Approval Conditions	(Omitted)
5 After Approval	(-1 to -3 are omitted.) -4 The ship is, no later than the survey due date specified in **1.1.3-1(6)(a)i), Part B of the Rules**[1, 2], to be subject to a Partial Survey in accordance with **(a)** to **(i)** of **8.1.2-1(1), Part B of the Rules**[3, 4] after the examinations specified in the following (1) to (4) are carried out and the shaft condition is confirmed to be satisfactory. However, for propeller shafts with keyless connections, the maximum interval of two consecutive surveys according to the requirements applied to Partial Surveys, including survey items 2 and 9 specified in **Table B8.1, Part B of the Rules** or Ordinary Surveys (specified in **8.1.1, Part B of the Rules**) is not to exceed 15 *years*[5, 6]. In all cases where the results of the examinations specified in the following (1) to (4) or the Partial Survey are not satisfactory, an Ordinary Survey specified in **8.1.1, Part B of the Rules** is to be carried out. (1) Review of service records, including those specified in (2) and (3) of 4-3, is to be carried out. (2) Review of test records of the lubricating oil analysis is to be carried out to confirm that the reference standards specified in 4-3 are complied with. In the case of environmentally acceptable lubricants (EAL), however, observations of trends (such as TAN (total acid number), viscosity and colour change, etc.) based on periodical oil analysis may be made instead regardless of the criteria for the parameters in 4-3. In such cases, observations of TAN trends are to be made based on sequential analysis in conjunction with the limits for continued use in service defined by oil makers. (3) An oil sample examination is to be carried out. (4) Verification of no reported repairs by grinding or welding of shafts and/or propellers is to be carried out.
6 Cancellation of Approval	(Omitted)

((Notes) is omitted.)

Annex B1.1.3-7ALTERNATIVE PROPELLER SHAFT AND STERN TUBE SHAFT SURVEY METHODS

Chapter 2 SHAFT SURVEYS

2.2 Surveys of Oil Lubricated Shafts

2.2.1 Surveys

Sub-paragraph -2 has been amended as follows.

2 Before carrying out surveys in accordance with **Table 2.2** or **2.3**, the examinations specified in the following **(1)** to **(3)** are to be carried out. When the results of the examinations specified in the following **(1)** to **(3)** or the results of surveys in accordance with the following **Table 2.2** or **2.3** are not satisfactory, a survey in accordance with **Table 2.1** is to be carried out.

(1) Review of service records, including confirmation of bearing temperature records, is to be carried out.

(2) Review of test records of lubricating oil analysis is to be carried out to confirm that the standards specified in **B8.1.2-1, Part B of the Guidance** are complied with.

(3) Oil sample examinations are to be carried out.

(~~3~~4) Verification of no reported repairs by grinding or welding of shafts and/or propellers is to be carried out.

“Guidance for high speed craft” has been partly amended as follows:

Part 2 CLASS SURVEYS

Chapter 3 PERIODICAL SURVEYS AND PLANNED MACHINERY SURVEYS

3.9 Propeller Shaft and Stern Tube Shaft Surveys

3.9.4 Partial Surveys

Sub-paragraph -1(2) has been amended as follows.

1 The “reference standards deemed appropriate by the Society” referred to in **3.9.4-1(2)(b)i), Part 2 of the Rules** means the reference standards specified in the following **(1)** and **(2)**:

(1) (Omitted)

(2) The following **(a)** and **(b)** upper limits for IR Oxidation and separated water; however, in the case of environmentally acceptable lubricants (EAL), regardless of the following **(a)**, observation of any trends (such as TAN (total acid number), viscosity and change in colour etc.) based on periodical oil analysis ~~can~~ may be made. In such cases, observations of TAN trends are to be made based on sequential analysis in conjunction with limits for continued use in service defined by oil makers.

(a) IR oxidation @ 5.85μm: 10 (*Abs.unit*/*cm*)

(b) Separated water: 1.0 *%*

"Guidance for the survey and construction of inland waterway ships" has been partly amended as follows:

Part 2 CLASS SURVEYS

Chapter 8 PROPELLER SHAFT AND STERN TUBE SHAFT SURVEYS

8.1 Propeller Shaft and Stern Tube Shaft Surveys

8.1.2 Partial Surveys

Sub-paragraph -1(2) has been amended as follows.

1 The "reference standards deemed appropriate by the Society" referred to in **8.1.2(2)(b)i), Part 2 of the Rules** means the reference standards specified in the following **(1)** and **(2)**:

(1) (Omitted)

(2) The following **(a)** and **(b)** upper limits for IR Oxidation and separated water; however, in the case of environmentally acceptable lubricants (EAL), regardless of the following **(a)**, observation of any trends (such as TAN (total acid number), viscosity and change in colour etc.) based on periodical oil analysis ~~can~~ may be made. In such cases, observations of TAN trends are to be made based on sequential analysis in conjunction with limits for continued use in service defined by oil makers.

(a) IR oxidation @ 5.85μm: 10 (*Abs.unit*/*cm*)

(b) Separated water: 1.0 *%*

Table 2.8.1.3-1 has been amended as follows.

Table 2.8.1.3-1 Approval Procedure of Preventive Maintenance System for Oil Lubricated Propeller Shafts

Item	Procedures
1. General	(Omitted)
2. Application	(Omitted)
3. Approval and Notation	(Omitted)
4. Approval Conditions	(Omitted)
5. After Approval	(-1 to -3 are omitted.) -4 The ship is, no later than the survey due date specified in **1.1.3-1(6)(a)i), Part 2 of the Rules**[1, 2], to be subject to a Partial Survey in accordance with **(a)** to **(i)** of **8.1.2(1)**, **Part 2 of the Rules**[3, 4] after the examinations specified in the following (1) to (4) are carried out and the shaft condition is to be confirmed satisfactory. However, for propeller shafts with keyless connections, the maximum interval of two consecutive surveys according to the requirements applied to Partial Surveys, including survey items 2 and 9 specified in **Table 2.8.1, Part 2 of the Rules** or Ordinary Surveys (specified in **8.1.1, Part 2 of the Rules**) is not to exceed 18 *years*[5, 6]. In all cases where the results of the examinations specified in the following (1) to (4) or the Partial Survey are not satisfactory, an Ordinary Survey specified in **8.1.1, Part 2 of the Rules** is to be carried out. (1) Review of service records, including those specified in (2) and (3) of 4.-3, is to be carried out. (2) Review of test records of the lubricating oil analysis is to be carried out to confirm that the reference standards specified in 4.-3 are complied with. In the case of environmentally acceptable lubricants (EAL), however, observations of trends (such as TAN (total acid number), viscosity and colour change, etc.) based on periodical oil analysis may be made instead regardless of the criteria for the parameters in 4-3. In such cases, observations of TAN trends are to be made based on sequential analysis in conjunction with the limits for continued use in service defined by oil makers. (3) An oil sample examination is to be carried out. (4) Verification of no reported repairs by grinding or welding of shafts and/or propellers is to be carried out.
6. Cancellation of Approval	(Omitted)