



भारत सरकार / GOVERNMENT OF INDIA

पोत परिवहन मंत्रालय / MINISTRY OF SHIPPING,

नौवहन महानिदेशालय/ DIRECTORATE GENERAL OF SHIPPING

टेलीफोन : 91-22-22613651-54

जहाज़ भवन"/ JAHAZ BHAVAN

Tele: 91-22-22613651-54

फेक्स: 91-22-2613655

वालचंद हरिचंद मार्ग/ W. H. MARG,

Fax: 91-22-22613655

Email: dgship@dgshipping.com

मुंबई / MUMBAI 400 001

Web: www.dgshipping.com

Engineering Circular No. 7 / 2013

NO: ENG/Misc:29(73)/09 Pt.

Dated: 04th September 2013

Subject: Survey of Tail-shafts.

1. General:

1.1 Tail-shaft survey means survey of propeller shafts and tube shafts (hereafter referred to as tail-shafts) as well as survey of other propulsion systems. Indian flag cargo vessels, regardless of size and voyages required to carry out the survey of tail-shafts as per Clause (e), (f), (g),(h)and (i) of Rule 73(2) of the M.S (Cargo Ship Construction and Survey) Rules, 1991. Further, to streamline the inspection requirements of tail-shafts and to ensure uniformity with the relevant rules of the Classification Societies, the Directorate had issued Engineering Circular No.83 dated 01.05.2007.

1.2 It is recognized that new technological advancement in the propulsion systems, particularly with regard to the corrosion resistant materials and new oil glands, have considerably improved the service life and reliability of the tail shaft systems and that survey procedures for the tail shafts being followed by the various Classification Societies with extended intervals have demonstrated satisfactory results.

1.3 It is also noted that the Survey Guidelines from the IMO under the Harmonized System of Survey and Certification (resolution A.1053(27)) provides for extended intervals for the dry-dock surveys for various categories of ships.

2. Purpose

2.1 Recently, it has been noticed that many ship owners / managers are approaching the Directorate General of Shipping as a matter of routine for extension of the interval period between two consecutive withdrawal of tail-shaft during Tail-shaft surveys, with favourable recommendation in this regard from the concerned Recognised Organizations (ROs).

2.2 The Directorate after careful examination of these requests from various shipping companies and also after considering the respective Classification Society rules in this regard, promulgates the following procedure and periodicity for the survey of tail-shafts of Indian ships.

3. Applicability:

3.1. This guideline applies to all Indian cargo ships and supersedes the Engineering Circular No.83 dated 01.05.2007. In all cases where the provisions of this circular is at variance with any previously issued circular/notice/order, the provisions of this circular shall be applicable.

3.2. The Recognised Organization referred to in this circular as authorised for assignment of the tail-shaft survey intervals shall be the RO with which the vessel is classed.

1. Interval for Tail-shaft surveys based on the type of the propulsion system:

Recognising that several types of propulsion systems were not addressed in the M.S (Cargo Ship Construction and Survey) Rules, 1991 and the Engineering Circular No.83 while defining the periodicity of tail-shaft surveys, the following maximum intervals are now being specified for the tail shaft surveys of the various propulsion systems referred to therein:-

Table: 1		
Intervals of Tail-shaft surveys based on the type of the system		
Sr. No	Type of propulsion system	Interval of survey
1	Shafts with <i>keyed propeller</i> attachments and fitted with continuous liners or oil glands, or corrosion resistant materials and designed to reduce stress concentration and approved by the RO.	5 yrs
2	Shafts having <i>keyless-type propeller</i> attachments made of corrosion resistant materials or fitted with oil glands, approved by the RO.	5 Yrs
3	Shafts having <i>solid coupling flanges</i> at the after end and fitted with oil glands or made of corrosion resistant materials, approved by the RO.	5 yrs
4	<i>Controllable pitch propellers</i> for main propulsion purposes, provided the system is approved by the RO.	5 yrs
5	Directional propellers, Podded propulsion units, Water jet units, provided the system is approved by the RO.	5 yrs
6	All other tail shafts of the propulsion systems not mentioned above, unless specifically approved by the RO for extended intervals of surveys.	2 ½ yrs

2. Intervals of tail- shaft surveys based on the Survey process:-

The Classification Societies, in line with the IACS guidelines, have implemented satisfactory survey processes with extended intervals between the two consecutive withdrawals of tail-shaft for the surveys, but, under varying nomenclatures amongst the Societies. For the purpose of uniformity in interpretation, the different survey processes referred in this circular are briefly described as follows:-

4.1. Normal Surveys: These are the conventional survey processes in which the tail- shaft is completely withdrawn at intervals as detailed in Table:1 and thoroughly examined to the satisfaction of the Recognised Organization. Controllable pitch propellers, Directional propellers, Podded propulsion units, Water jet units and other non-convention propulsion systems are also to be opened up and the working parts examined, together with the control gears, to the satisfaction of the RO.

4.2. Modified Survey Schemes:

Following categories of surveys of Propeller shafts and Tube Shafts can be grouped under modified survey Scheme.

4.2.1 Modified Survey: The Modified Survey consists of the *partial-withdrawal of the shaft*, sufficient to ascertain the condition of the stern bearing and shaft in way.

For Keyed propellers, performing a non-destructive examination by an approved crack – detection method of about one third of the length of the taper from the big end, for which dismantling of propeller will be required.

For keyless propellers or shafts with a solid flange connection to the propeller, a visual examination to confirm the satisfactory condition of the sealing arrangements is to be made. The oil glands are to be capable of being replaced without removal of the propeller.

For a vessel which has completed the ‘Modified Survey’ to the satisfaction of the RO with which the vessel is classed, the concerned RO may accept the same in lieu of two consecutive surveys at intervals specified in the table.1, without any further permission from the Administration. (i.e. For propulsion systems under Sr. no. 1 to 5 of table.1, the interval between the two consecutive full-withdrawals of tail-shaft can extend up-to **10yrs** and for Sr. no.6 up-to 5 yrs, provided the system is approved to that effect and surveyed under the Modified Survey scheme to the satisfaction of the RO.)

4.2.2 Partial Surveys:- A system falling under the Modified survey scheme, if the owner so desires, can be offered for a Partial survey. The Partial Survey consists of the propeller being backed off in any keyed shaft and the top half of the cone examined by an efficient crack detection method for which the removal of the key will be required. Oil gland and seals are to be examined and dealt with as necessary. Wear-down is to be measured and found satisfactory. Propeller and fastenings are to be examined.

For a vessel which has completed the 'Partial Survey' to the satisfaction of the RO with which the vessel is classed, the concerned RO may postpone the complete withdrawal survey of the tail-shaft for a maximum period of half the survey cycle as specified in the Table.1, without any further permission from the Administration. (ie. For propulsion systems under Sr. no. 1 to 5 of table.1, the interval between the two consecutive withdrawals of tail-shaft can extend upto 7 ½ yrs, provided the system is approved to that effect and surveyed under 'Partial Survey' scheme to the satisfaction of the RO.)

4.2.3 Tail-shaft Condition Monitoring (TCM) Program: For the vessels complying with IACS Unified Requirements Z21 and fitted with oil lubricated shafts and approved oil glands or any other equivalent arrangements approved by the RO may be assigned with suitable Tail-shaft Condition Monitoring (TCM) or equivalent Notation as per the procedures of the Recognised Organization with which the vessel is classed. For a vessel which has been assigned with the TCM or equivalent notation, and is maintained to that effect throughout the period with required periodical monitoring and tests, the intervals between the two consecutive withdrawals of tail-shaft may be extended to a maximum period of 10 yrs, by the concerned RO without any further approval from the Administration, provided the records to that effect demonstrate that the system is maintained to its satisfaction. In this case partial withdrawal of the Tail-shaft will not be required at the Modified Survey.

5. Extension of Tail-shaft Surveys:

Though it is expected that the tail-shaft surveys are to be undertaken in conjunction with the periodically scheduled dry-dock surveys of a ship, it has come to the notice of this Directorate that in a few instances the ship-owners were not able to ensure this alignment due to genuine technical difficulties. Considering the practical impediments being faced due to the misalignment of the two inter-related surveys and also noting that the Classification Society rules permit extension of the tail-shaft surveys in such cases till the next scheduled dry-docking, the Chief Surveyor with the GOI permits the following, solely for the purpose of aligning the tail-shaft surveys with the next scheduled dry-docking :-

- 5.1. Tail-shaft surveys of the propulsion systems falling under sr. no. 1 to 5 of table.1 may be postponed for a maximum period of **one year** or till the next scheduled dry-dock surveys, whichever is earlier. Tail-shaft surveys of the systems falling under sr. no. 6 of table.1 may be postponed for a maximum period of **six months** or till the next scheduled dry-dock surveys, whichever is earlier.
- 5.2. The above extension is permitted only for the vessels less than 15(fifteen) years of age and companies, meeting the conditions of the “green channel” category as specified in the Merchant Shipping Notice 13 of 2012 and subject to the satisfactory inspection applicable as per the IRS requirements in this regard and on payment of applicable fees to the Directorate .
- 5.3. Whenever extension of dry-dock survey is granted to a vessel by the IRS in accordance with the Merchant Shipping Notice 13 of 2012 or otherwise by the Administration, the same shall be deemed to be applicable to the commensurate extension of tail-shaft surveys as well, subject to payment of the applicable fees to the Directorate for tailshaft survey extension .
- 5.4. Any extension or re-assignment of the interval for the tail-shaft surveys, not expressly provided in the above paragraphs, shall be referred to the Administration with a clear recommendation in this regard by the IRS.

In all such cases where the extension or re-assignment of the survey dates of the tail-shaft system has been granted in accordance with this circular, the IRS shall ensure that the same is clearly reflected in the updated survey status of the vessel through a ‘memorandum’ with specific mention of the relevant provisos of this circular.

This is issued with the approval of the competent authority and comes into effect from the date of issue of this circular.

Sd/-
(Aniruddha Chaki)
E & SS cum DDG (Tech)

To,

1. The Principal Officers/ Mercantile Marine Department, Mumbai/Kolkata/ Chennai/ Kandla/Cochin.
2. The Surveyor-in-charge, Mercantile Marine Department, Goa/Jamnagar/Port Blair /Visakhapatnam /Tuticorin /Delhi /Haldia/ Paradip /Mangalore.
3. All Recognised Organizations.
4. Indian National Shippers Association (INSA), Mumbai
5. All Shipping Companies
6. CS/NA/CSS/Jt.DG
7. Hindi Cell
8. Guard file.
9. Computer Cell