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# Z 20 Planned Maintenance Scheme (PMS) for Machinery

(May 2001)

## 1 General

### 1.1 Application

1.1.1 These requirements apply to an approved Planned Maintenance Scheme for Machinery (PMS) as an alternative to the Continuous Machinery Survey (CMS).

1.1.2 It considers surveys to be carried out on the basis of intervals between overhauls recommended by manufacturers, documented operator's experience and a condition monitoring system, where fitted.

1.1.3 This scheme is limited to components and systems covered by CMS.

1.1.4 Any items not covered by PMS shall be surveyed and credited in the usual way.

### 1.2 Maintenance Intervals

1.2.1 In general, the intervals for PMS shall not exceed those specified for CMS. However, for components where the maintenance is based on running hours longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations.

1.2.2 However, if an approved condition monitoring system is in effect, the machinery survey intervals based on CMS cycle period may be extended.

### 1.3 Onboard responsibility

1.3.1 The chief engineer shall be the responsible person on board in charge of the PMS.

1.3.2 Documentation on overhauls of items covered by the PMS shall be reported and signed by the chief engineer.

1.3.3 Access to computerized systems for updating of the maintenance documentation and maintenance program shall only be permitted by the chief engineer or other authorized person.

## 2 Procedures and conditions for approval of a PMS

### 2.1 System Requirements

2.1.1 The PMS shall be programmed and maintained by a computerized system. However, this may not be applied to the current already approved schemes.

2.1.2 The system shall be approved in accordance with a procedure of each individual Member Society.

2.1.3 Computerized systems shall include back-up devices, such as disks/tapes, CDs, which are to be updated at regular intervals. ►

## 2.2 Documentation and information

2.2.1 The following documentation shall be submitted for the approval of the scheme:

- (i) organization chart identifying areas of responsibility;
- (ii) documentation filling procedures;
- (iii) listing of equipment to be considered by classification in PMS;
- (iv) machinery identification procedure;
- (v) preventive maintenance sheet(s) for each machine to be considered;
- (vi) listing and specifications of condition monitoring equipment;
- (vii) baseline data for equipment with condition monitoring,
- (viii) listing and schedule of preventive maintenance procedures.

2.2.2 In addition to the above documentation the following information shall be available on board:

- (i) all clauses in 2.2.1 in an up-to-date fashion;
- (ii) maintenance instructions (manufacturer's and shipyard's);
- (iii) condition monitoring data including all data since last opening of the machine and the original base line data;
- (iv) reference documentation (trend investigation procedures etc.),
- (v) records of maintenance including repairs and renewals carried out.

## 2.3 Approval validity

2.3.1 When the PMS is approved a "Certificate of Approval for Planned Maintenance Scheme" is issued. However, other equivalent certification or class notation may be issued according to the procedure in use in each individual Member Society. In any case, the certification is to be kept on board.

2.3.2 An implementation Survey shall be carried out to confirm the validity of the certificate/class notation (see 3.1).

2.3.3 An annual report covering the year's service, including the following information, shall be reviewed by the Society:

- (i) clauses iii, iv, v and vii as well as changes to other clauses in 2.2.1;
- (ii) clause iii of 2.2.2,
- (iii) full trend analysis (including spectrum analysis for vibrations) of machinery displaying operating parameters exceeding acceptable tolerances.

2.3.4 An Annual Audit shall be carried out to maintain the validity of the PMS (see 3.2).

2.3.5 The survey arrangement for machinery under PMS can be cancelled by the Society if PMS is not being satisfactorily carried out either from the maintenance records or the general condition of the machinery, or when the agreed intervals between overhauls are exceeded.

2.3.6 The case of sale or change of management of the ship or transfer of class shall cause the approval to be reconsidered.

2.3.7 The shipowner may, at any time, cancel the survey arrangement for machinery under PMS by informing the Society in writing and for this case the items which have been inspected under the PMS since the last annual survey can be credited for class at the discretion of the attending surveyor.



**3 Surveys****3.1 Implementation Survey**

3.1.1 The Implementation Survey shall be carried out by the Society's surveyor within one year from the date of approval.

3.1.2 During the implementation survey the following shall be verified by a surveyor to ensure:

- (i) the PMS is implemented according to the approval documentation and is adapted to the type and complexity of the components/system on board;
- (ii) the PMS is producing the documentation required for the Annual Audit and the requirements of surveys and testing for retention of class are complied with;
- (iii) the onboard personnel is familiar with the PMS.

3.1.3 When this survey is carried out and the implementation is found in order, a report describing the system shall be submitted to the Society and the system may be put into service.

**3.2 Annual Audit \***

3.2.1 An annual audit of the PMS shall be carried out by a Society's surveyor and preferably concurrently with the annual survey of machinery.

3.2.2 The surveyor shall review the annual report or verify that it has been reviewed by the Society.

3.2.3 The purpose of this survey shall be to verify that the scheme is being correctly operated and that the machinery has been functioning satisfactorily since the previous survey. A general examination of the items concerned shall be carried out.

3.2.4 The performance and maintenance records shall be examined to verify that the machinery has functioned satisfactorily since the previous survey or action has been taken in response to machinery operating parameters exceeding acceptable tolerances and the overhaul intervals have been maintained.

3.2.5 Written details of break-down or malfunction shall be made available.

3.2.6 Description of repairs carried out shall be examined. Any machinery part, which has been replaced by a spare one, due to damage, is to be retained on board — where possible — until examined by a Society's Surveyor.

3.2.7 At the discretion of the surveyor, function tests, confirmatory surveys and random check readings, where condition monitoring equipment is in use, shall be carried out as far as practicable and reasonable.

3.2.8 Upon satisfactory completion of the above requirements, the Society shall retain the PMS.

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Note: \* The term audit, in this context, is not related to ISM audit. ►

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**3.3 Damage and repairs**

3.3.1 The damage of components/machinery shall be reported to the Society. The repairs of such damaged components / machinery shall be carried out to the satisfaction of the Society's surveyor.

3.3.2 Any repair and corrective action regarding machinery under PMS system shall be recorded in the PMS logbook and repair verified by the Society's surveyor at the Annual Audit.

3.3.3 In the case of overdue outstanding recommendations or a record of unrepaired damage which would affect the PMS the relevant items shall be kept out of the PMS until the recommendation is fulfilled or the repair is carried out.

