



**ISM  
Code**

## ISM CODE & PLANNED MAINTENANCE SYSTEM

### 1. General

As required by the International Standard of **Safety Management (ISM) Code**, the ship owner and ship management company should ensure that the ship **hull structures, machinery and equipment** are **maintained** and **operated** in conformity with the applicable rules, regulations, requirements, procedures and standards established by the company.

It is important to remember that these requirements apply as much to the maintenance of the **hull**, the **deck machinery** and the **life-saving** and **fire-fighting** equipment as they do to **engine room items**.

How this is achieved will depend on the **size and complexity** of the **company** and the **types of ships** that it operates. The system **may be entirely electronic, entirely paper-based, or a combination** of the two and the level of **shore-based supervision will vary** from one Company to another.

**Essential** element of an effective PMS is the **adequate resources** to enable prompt and satisfactory maintenance to be carried out.

An **effective maintenance management system will be the result of an assessment by the Company of the associated risks**. In undertaking such an assessment, the Company should take into account the following:

- i. the maintenance recommendations and specifications of the equipment **manufacturer**;
- ii. the **history** of the equipment, including failures, defects and damage, and the corresponding remedial action;
- iii. the results of **third-party inspections**;
- iv. the **age** of the ship;
- v. identified **critical equipment** or systems;
- vi. the **consequences of the failure** of the equipment on the safe operation of the ship.

## 2. Reporting and investigation of technical deficiencies and non-conformities

Clause 10.2 of the ISM Code states that the company should ensure that any non-conformity (**defect**) is **reported**, with its possible cause, if known, and that appropriate corrective action is taken.

Problems reported may be **discovered** during routine technical **inspections or maintenance**, following a **breakdown** or an **accident**, or at any other time.

The Company's responses should be aimed **not only at the rectification** of the immediate technical deficiency, but **also at addressing** the underlying maintenance management **system failures** (non-conformities) that led to the problem in the first place.

Any **lessons learned** from the investigation of these failures should be examined for their **applicability to other ships in the fleet**, and the resulting trends and patterns should be used to identify opportunities for continual improvement.

## 3. Permit-to-work systems

Where appropriate, permit-to-work systems should be employed to ensure that **inspections and maintenance activities are carried out safely**. A well designed permit-to-work procedure will amount to a **risk assessment**, carried out before any hazardous activity is undertaken. As a result of the assessment, controls will be imposed to eliminate or reduce the risks involved.

These may include, among other things, an **assessment of the environment** in which the work will take place and adjacent areas and compartments (especially for hot work), the isolation of electrical circuits or the draining of pipes and tanks, the provision of appropriate and well maintained tools and equipment, the assignment of qualified and experienced personnel, stand-by and emergency arrangements.

## 4. Effective PMS in place

### *Essential elements*

- **Class survey** dates and items dealt with
- Does it **cover all equipment?** (Deck- Engine- LSA/FFE)
- **Maintenance schedules**/planning charts
- Monitor machinery **running hours**
- Details of **jobs done**, dates and references
- **Condition monitoring** procedures
- Details of **unscheduled maintenance**
- Preventative and corrective maintenance
- Details of **overdue items**
  - Why overdue
  - When they are to be done
  - Reasons why they can't be done, if any (lack of spares/time)
- **History** of components, breakdowns/defects
- **Manufacturers'** service instructions and job instructions
- Comprehensive and **clear instructions** for use available
- **Spare part** information
- **Reporting PMS** status/records regularly **to office**

### *Defect list*

- What kind of problems is the ship having
- Is the office being **notified**
- Are **repairs agreed**/authorised immediately
- Are **office replies** kept/recorded

### *Detailed reporting of actions taken*

- Comprehensive reporting of **inspections and maintenance**/overhaul of equipment
- Full description of **what done, where and when, spares used and who** did work and who supervised/checked work done

### *Spares quality, quantity, inventory*

- Are adequate spares on board - see Class critical minimum spares list
- How accurate is the inventory
- Are they logged in the PMS system when used
- Are they replaced in timely manner

### *Monitor outstanding requirements*

- **What are** the outstanding requirements
- What are the **reasons** for the outstandings
- Are the reasons **acceptable**
- Are there any **trends**
- How many items **rescheduled**/what is the system in place for authorising rescheduling of tasks

## 5. What records should be kept (and what use can we make of them?)

Records kept to **demonstrate compliance** with the company's maintenance procedures, and their **effectiveness**, may be divided into two broad categories:

### A. Externally-generated records

- Class records, reports and certificates
- Statutory records, reports and certificates
- Port State Control reports
- Reports of vetting organizations

### B. Internally-generated records

- Records of routine shipboard **inspections**
- Records of **maintenance** work carried out
- Records of the **testing** of stand-by and other **critical** equipment
- Records of the **testing of alarms** and emergency shut-downs
- **Superintendents' visit** and inspection reports
- Internal and third party **audit reports**
- **Reports of non-conformities**, accidents and hazardous occurrences
  - Records of the implementation and verification of **corrective action**
  - **Spare part** requests, delivery notes etc.

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