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Directive (19 /2017)

National Guidance for Battery Maintenance

Applicable to: Ship owners, Recognized Organizations, Shipping Companies, Flag State Surveyors

1. The Department of Marine Administration circulated this directive in the exercise of the power of Section 294(B), paragraph (b) of Myanmar Merchant Shipping Act.

2. Pursuant to the provision of Section 213(A) of Myanmar Merchant Shipping Act and the International Convention for the Safety of Life at Sea, 1974, the Department of Marine Administration circulated this National guidance for battery maintenance of Myanmar ships engaged on International Voyage.

3. The purpose of this directive is to ensure National standard for battery maintenance of Myanmar ships engaged on International Voyage to be complied with the requirements of the International Convention for the Safety of Life at Sea, 1974 as amended.

Maung Maung Oo
Director General
Department of Marine Administration

THE REPUBLIC OF THE UNION OF MYANMAR

MINISTRY OF TRANSPORT AND COMMUNICATIONS

DEPARTMENT OF MARINE ADMINISTRATION

MARINE ENGINEERING DIVISION

Guidance for Battery Maintenance

Date: 29.1.2018 **Resvise-00**

BATTERY MAINTENANCE

Introduction

All the batteries used on board a ship should be effectively maintained in order to prevent leakage or any other kind of problems. Battery maintenance is an important task on a ship which should be carried out in a diligent manner. First and fore most, all the batteries should be maintained in a fully charged condition. In case of lead-acid batteries a constant trickle charge should be provided. If a constant trickle charge is not available, then a regular charge up is necessary. If you want to know more about these various types of battery charging procedures, you can read this article on operational characteristics of batteries. Also another articles describes the different types of batteries used on board ships such as alkaline and lead acid batteries.

How do we maintain the batteries on board a ship? Well actually since the batteries used on board ships are not much different from those used on land, the maintenance procedures described here can be used for maintenance of these types of batteries irrespective of the fact whether they are used on land or sea. Of course the environmental conditions at sea are much more harsh than those at land with the presence of lots of humidity and corrosive nature of sea water.

Measuring charge/voltage

In order to measure the condition of a battery, normally two parameters are taken, specific gravity and voltage. The specific gravity is measured using a hydrometer while the latter is obviously measured using a voltage meter.

Hydrometer

The hydrometer is an arrangement in which a float is placed in a cylindrical glass tube. The glass tube has a rubber bulb at one end and a rubber tube attached at the other (see diagram below). A scale is drawn on the glass tube, against which the level of float is measured. In order to measure the charge, electrolyte from each cell is taken in the glass tube and the specific gravity is measured. It is necessary that all the cells have almost the same charge. This specific gravity reading is related to the charge of the battery and must be corrected for the temperature of the electrolyte. For example, the approximate value of a fully charged lead-acid battery is 1.280 at 15 degree Celsius.

Voltage

Apart from checking the specific gravity, you also need to the check the voltage. Normally the battery would show a voltage which is slightly above its rated voltage. E.g. a battery of 12 V should show nearly 12.6 approx in order to indicate that it is fully charged. A value near to the actual rated value or slightly less (say 11.9 V) certainly indicates a discharged condition. In actual practice, these values are not taken in isolation but both specific gravity and voltage are checked and compared with a standard chart for comparison provided by the manufacturer

Other maintenance work

- The electrolyte level in the batteries should be kept just above the top of the plate.
- In case of reduction in the level due to evaporation or chemical reaction, distilled water should be added.
- The battery should be kept clean and dry.
- There shouldn’t be any dirt deposits on the battery neither spilled electrolyte remains on the casing.
- Spilled electrolyte leads to flowing of stray currents, discharge of battery and also corrosion.
- All the battery terminals should be kept clean and applied with petroleum jelly.
- The small vents in the cell caps should also be cleared off.
- Cell voltage reading must also be taken during discharging, at regular intervals of time.
- Specific gravity should not be allowed to fall below 1.225 because sulfation starts to set in destroying the plates

Disposal

- Disposed into shore is prohibited.
- Shore disposal record and document to be kept on board for flag state and inspection.
- Old batteries and unused batteries must be kept on board for shore disposal.