標題

英国政府、マーシャル諸島政府からのボートダビットのリミットスイッチに関する通知

ClassNK
テクニカル
インフォメーション

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各位

英国政府及びマーシャル諸島政府よりボートダビットのリミットスイッチの作動確認に関して、添付の通り通知がありましたのでお知らせ致します。

なお、本件に関してご不明な点は、以下の部署にお問い合わせください。

一般財団法人　日本海事協会　（ClassNK）
本部　管理センター　材料艤装部
住所:　東京都千代田区紀尾井町 4-7（郵便番号　102-8567）
Tel.:　03-5226-2020
Fax:　03-5226-2057
E-mail:　eqd@classnk.or.jp

添付:

1. 英国政府からの通知:OAN 740
2. マーシャル諸島政府からの通知:MSA No.112-11

	Maritime and Coastguard Agency OPERATIONAL ADVICE NOTE	**Document number:** OAN 740
Revision: 01	LSA Inspection Guidance	**Date:** 15/03/2011
Distribution	**HQ**, **MO & RO**	
Target document	MSIS Survey of Life-Saving Appliances – Volume 1	
Expiry date	until incorporated into target documents	

Background

1. In light of previous accidents with davit limit switches, a MIN was issued on 9th February 2011.

2. In addition the Marine Safety Forum – Safety Flash 11-07, which is available under http://www.marinesafetyforum.org/upload-files//safetyalerts/msf-safety-flash-11.07.pdf, provides information on the accident which happened during FRC launching.

Actions

3. To prevent further occurrence of these accidents, it is strongly recommended that surveyors should request a test of all limit or proximity switches prior to any drill.

4. Surveyors (and PSCO's) are also reminded should have no involvement in any kind of operational test, only to witness them

5. It is recommended that surveyors during inspection advise the following actions:

- Checking the safe operation of all limit or proximity switches are included in the onboard maintenance routine;
- Establish if any Risk Assessment has been carried out for the launching and recovery of Fast Rescue Craft and whether it has been reviewed recently..

Author	Prasad Panicker	**Branch**	Survey Operations Manager
Authorised by	Paul Coley	**Branch**	Assistant Director Seafarers & Ships

Republic of the Marshall Islands
Office of the
MARITIME ADMINISTRATOR

11495 COMMERCE PARK DRIVE, RESTON, VIRGINIA 20191-1506
TELEPHONE: +1-703-620-4880 FAX: +1-703-476-8522
EMAIL: maritime@register-iri.com WEBSITE: www.register-iri.com

MARINE SAFETY ADVISORY NO. 112-11

To: **Regional Marine Safety Offices, Nautical Inspectors, Masters, Owners/Agents**

Subject: **MALFUNCTION OF PROXIMITY SWITCH (MAIB SAFETY BULLETIN 2/2011)**

Date: **26 August 2011**

Following the failure in February 2011 of a wire rope attached to a Norsafe fast rescue boat, which resulted in the loss of life of a seafarer, the UK Marine Accident Investigation Branch (MAIB) has issued Safety Bulletin 2/2011 (attached).

A possible contributing factor to the incident was the failure of the proximity/limit switch (Telemechanique XS7-C40FP260) fitted to the davit. This switch should have cut electrical power to the winch motor before the davit reached its stops, but failed to function. Hoisting was not stopped before the davit reached its stowed position, possibly resulting in an overload of the rescue boat falls.

This incident happened on the Schat-Harding SA 1.5 rescue boat davit system. It is also known that the same proximity/limit switches are fitted to Schat-Harding SA 1.75 davits.

The terminal within the proximity/limit switch was found to be corroded.

Owners and managers of vessels equipped with lifeboat and/or rescue boat davits should:

1. in cases where Schat-Harding SA 1.5 or Schat-Harding SA 1.75 davits are fitted, follow and implement the manufacturer's instructions;
2. ensure that all proximity/limit switches fitted to boat davit systems are tested on each occasion before a boat is hoisted and that such devices are not relied upon during operation;
3. follow manufacturers' recommendations regarding the maintenance and periodic testing, examination and replacement of proximity/limit switches used on lifeboat and or rescue boat davit systems and seek clarification from manufacturers where ambiguity exists; and
4. verify the effectiveness of seals on electrical equipment fitted to boat davit systems on open decks.

The Administrator recommends owners and managers ensure that maintenance manuals include the necessary instructions, as required by SOLAS Regulation III/36.

MAIB SAFETY BULLETIN 2/2011

Malfunction of a proximity switch, which resulted in failure of a fall wire with the loss of one life on the car carrier *Tombarra*

Marine Accident Investigation Branch
Mountbatten House
Grosvenor Square
Southampton
SO15 2JU

MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

MAIB SAFETY BULLETIN 2/2011

This document, containing safety lessons, has been produced for marine safety purposes only, on the basis of information available to date.

The Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 provide for the Chief Inspector of Marine Accidents to make recommendations at any time during the course of an investigation if, in his opinion, it is necessary or desirable to do so.

Steve Clinch
Chief Inspector of Marine Accidents

NOTE

This bulletin is not written with litigation in mind and, pursuant to Regulation 13(9) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005, shall not be admissible in any judicial proceedings whose purpose, or one of whose purposes, is to apportion liability or blame.

This bulletin is also available on our website: www.maib.gov.uk
Press Enquiries: 020 7944 6433/3387; Out of hours: 020 7944 4292
Public Enquiries: 0300 330 3000

BACKGROUND

At approximately 1550 (UTC) on 7 February 2011, the fall wire of the rescue boat on board the UK registered car carrier *Tombarra* parted when the vessel was alongside in Royal Portbury Docks, Bristol, UK. The accident occurred as the rescue boat reached its stowed position on the davit following a monthly drill. Hoisting was not stopped before the davit reached its stowed position. The proximity switch, that should have cut electrical power to the winch motor before the davit reached its stops, failed to function. The rescue boat and its four crew fell nearly 29m **(Figure 1)** into the water below. One of the boat's crew died and two were hospitalised.

Figure 1

Vessel and parted fall wire

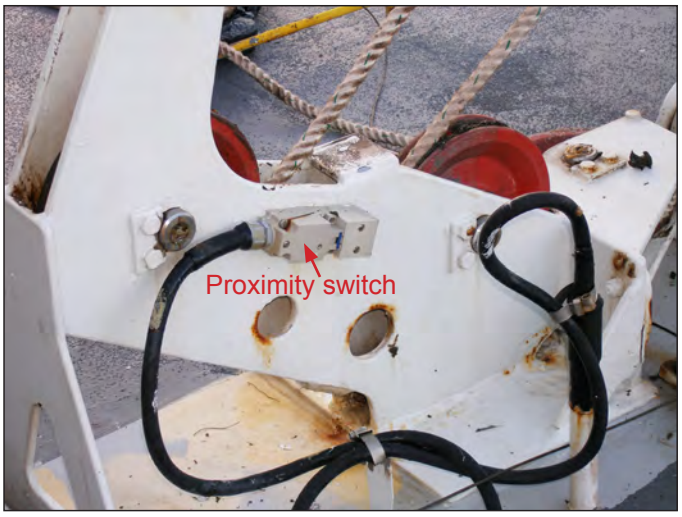
The 12mm diameter fall wire had a certified minimum breaking load of 141kN. Its safe working load (SWL) was 23.5kN based on a factor of safety of six. The wire was fitted to a single-arm davit (SA 1.5) **(Figure 2)**, manufactured by Umoe Schat-Harding Equipment AS (Schat-Harding). The davit system was powered by a Schat-Harding W50 two-speed electric winch with a nominal pull of 50kN.

Figure 2

Davit system

The winch was operated by a control panel sited forward of the davit. The boat was hoisted using the buttons on the control panel until the davit was near the stowed position. It was then intended that hoisting be completed manually by the use of a winch handle adjacent to the winch motor. To prevent the inadvertent operation of the winch when the rescue boat was in its stowed position, an inductive proximity sensor/ switch (Telemechanique XS7-C40FP260) was fitted on the davit **(Figure 3)**. The switch was intended to cut off power to the winch when the davit closed to within approximately 12mm of the sensor.

Figure 3



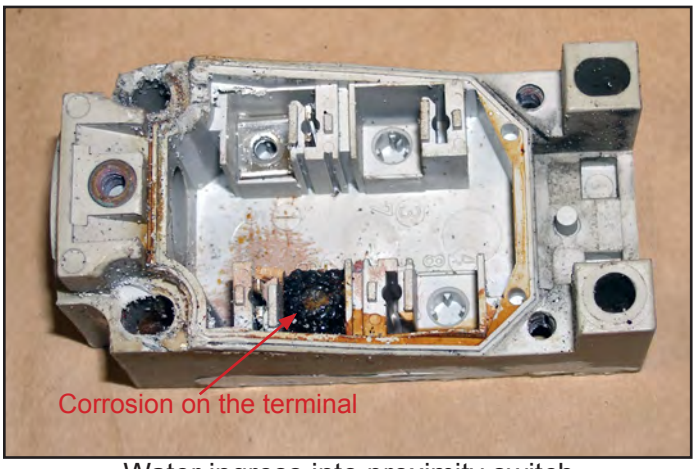
Proximity switch on davit

Annual inspections of the davit system had been conducted by Schat-Harding service engineers since the vessel was built in 2006. The last service was conducted in September 2010.

INITIAL FINDINGS

The fall wire was observed to be in good condition and when tested after the accident it achieved a breaking load of 137kN. The wire parted near the lower most davit sheave as the rescue boat reached its stowed position and the winch was still hoisting under power. Although the winch motor was rated with a nominal pull of 50kN, the maximum pull that it was capable of exerting when trying to overcome the increased resistance in the system during the final stages of hoisting would have rapidly exceeded the breaking load of the wire. The proximity switch, which should have prevented this situation from occurring, was tested in situ and was found to be defective.

Figure 4



Water ingress into proximity switch

The switch was installed in 2006, and prior to the accident it was not tested before hoisting was commenced. Inspection identified that the switch body had been penetrated by water **(Figure 4)**. However, detailed analysis highlighted that the switch malfunctioned due to an unrelated electronic fault. The MAIB is aware of both inductive proximity and mechanical limit switches fitted on other vessels that have also failed to operate correctly. However, none are known to have resulted in a similar accident.

The rescue boat was weighed and was approximately 450kg overweight (see MAIB Safety Bulletin 1/2011 for further details). Although the additional weight caused the davit's SWL to be exceeded, by itself it would not have caused the wire to fail.

SAFETY ISSUES

- The maximum pull of a hoist winch can exceed its nominal pull several-fold, and therefore is likely to exceed the breaking loads of other system components unless this is prevented by a properly functioning ‘final stop’ or safety device.
- The proximity switch fitted to the Schat-Harding SA 1.5 davit, and also known to be fitted to the SA 1.75 davit, is considered by its manufacturer to be inappropriate for use as a ‘final stop’ or safety device.
- The fitting of the proximity switch was not compliant with its manufacturer’s instructions. As a result, the gland and cable entry were higher than the switch body and its susceptibility to water ingress was increased.
- Given the potential catastrophic consequences of the failure of the proximity switch fitted to the SA 1.5 and SA 1.75 davits, it is essential that owners of vessels fitted with these davits (over 320 vessels) are made aware of the potential limitations of the switches and the precautions to be taken.
- All devices (inductive and mechanical) fitted to davits to prevent overload must be maintained, tested and replaced in accordance with manufacturers’ recommendations.

ACTION TAKEN

Schat-Harding has issued a Product Awareness Notice (PAN) to its customers highlighting the need to test the proximity switches fitted on its SA 1.5 and SA 1.75 davits on each occasion before hoisting operations commence, and recommends that the proximity switch is replaced every 2 years; it also highlights the need for caution when using pressure washers on deck.

RECOMMENDATION

S117/2011 Owners and operators of vessels equipped with boat davits should:

- In the case of vessels fitted with the Schat-Harding SA 1.5 and SA 1.75 davits, follow the advice contained in the PAN recently issued by the manufacturer or urgently contact Schat-Harding[1] if a PAN has not been received.
- Ensure that all devices (inductive or mechanical) fitted to boat davit systems to prevent overload are tested on each occasion before a boat is hoisted and that such devices are not relied upon during operation.
- Follow manufacturers’ recommendations regarding the maintenance and periodic testing, examination and replacement of safety devices, seeking clarification from manufacturers where ambiguity exists.
- Verify the effectiveness of watertight seals on electrical equipment fitted to boat davit systems on weatherdecks.

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[1] service@schat-harding.com