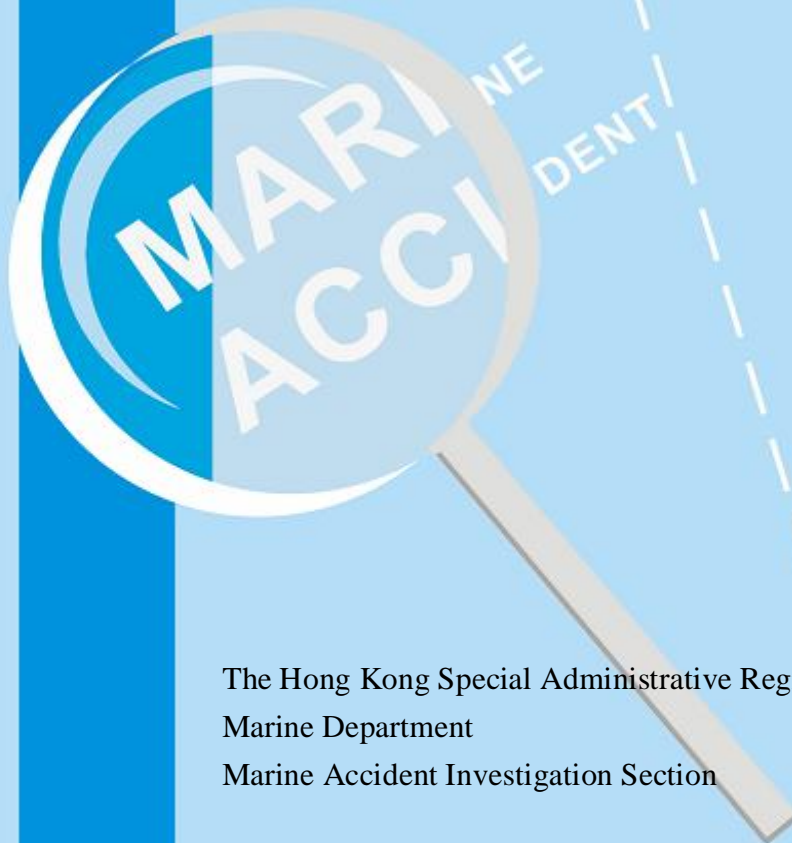




**Report of investigation into the
grounding of the Togo registered
general cargo ship “*Yu Hai 1*” in
Discovery Bay, Hong Kong
on 23 August 2017**



The Hong Kong Special Administrative Region
Marine Department
Marine Accident Investigation Section

25 February 2020

Purpose of Investigation

The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department is to determine the circumstances and the causes of the incident with the aim of enhancing the safety of life at sea and avoiding similar incidents in future.

It is not intended to apportion blame or liability towards any particular organization or individual except so far as necessary to achieve the said purpose.

The MAISSPB has no involvement in any prosecution or disciplinary action that may be taken by the Marine Department resulting from this incident.

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Summary

At about 0825 hours on 23 August 2017, a Togo registered general cargo ship “YU HAI 1” (*the vessel*) under unballasted condition without cargo on board began to drag her anchor southwesterly at Western Anchorage No.1 in Hong Kong due to super typhoon “Hato”. The master was unable to control the ship under the adverse weather condition. Despite an escort tug arrived at the scene, she could not reach *the vessel* which had moved into the northwest shallow water area close to the shoreline near the entrance of Nim Shue Wan .

At about 1126 hours, *the vessel* ran aground near the entrance of the yacht basin of Discovery Bay Marina Club and listed to the port side due to water ingress through the breached bottom. All crew including the master abandoned *the vessel*. They swam ashore without injury. Days later on 26 and 27 August 2017, *the vessel* was further damaged by another severe tropical storm “Pakhar”. *The vessel* was finally refloated after salvage operation lasting for two months and was towed away from Hong Kong for scrap.

On the surface, super typhoon “Hato” might seem to be the source of the incident. However, the unseaworthy condition of *the vessel*; the failure of effective implementation of safety management system; and the incompetence of the crew especially the master and senior officers were in fact the root causes. The management company also failed in managing a vessel properly.

1. Description of the vessel

Ship name	: <i>YU HAI 1</i>
Flag	: Togo
Port of registry	: Lome
IMO number	: 8992041
Type	: General cargo
Year built, shipyard	: 1986, Yamanaka Ship Building Co., Ltd., Japan
Gross tonnage	: 1,318
Net tonnage	: 751
Summer deadweight	: 2,000 tonnes
Length overall	: 70.7 metres
Breadth	: 12.0 metres
Engine power, type	: 735 kW, Niigata 6M34X
Classification society	: Union Bureau of Shipping
Registered owner	: Xin Hong Tai Trading Limited
Management company	: Xin Hong Tai Trading Limited
Number of crew	: 10



Figure 1: *The vessel.*

2. Sources of evidence

- 2.1 The master and the crew of *the vessel*.
- 2.2 The Harbour Patrol Section (HPS) of Hong Kong Marine Department (HKMD).
- 2.3 The Vessel Traffic Centre (VTC) of HKMD.
- 2.4 The Hong Kong Observatory (HKO).

3. Outline of events

(All times were local time UTC + 8 hours)

- 3.1 On 4 August 2017, *the vessel* arrived in Hong Kong from Chaozhou, China, with ten crew including the master. At about 1750 hours, *the vessel* dropped her starboard anchor at the Western Anchorage No.1 (WA1).
- 3.2 The anchoring position was about 1.5 nautical miles (nm) off northeast of the island Peng Chau. The distance to the closest shoreline was about 0.9 nm.
- 3.3 *The vessel* was under lightly loaded condition without any cargo or ballast water on board. Her port anchor was malfunctioned but the master did not inform the port authority. She had draughts of about 0.6 m forward and 3.0 m aft, which gave a mean draft of about 1.8 m and trim of 2.4 m.
- 3.4 On 7 August 2017, port State control (PSC) officer of HKMD conducted an inspection of *the vessel*. A total of 15 detainable deficiencies and 36 other deficiencies were found (Appendix I). The inspection concluded that *the vessel* was unseaworthy and was therefore detained. The owner and the master were requested to rectify the deficiencies before departure.
- 3.5 At 0840 hours on 22 August 2017, HKO issued a tropical cyclone warning signal (TCWS) No.1 when typhoon “Hato” was about 660 kilometres east-southeast of Hong Kong. Typhoon strong wind warning signal No.3 was hoisted at 1820 hours.
- 3.6 At 0520 hours on 23 August 2017, northeast gale or storm signal No.8 was hoisted. Later on at about 0910 hours, the typhoon had reached hurricane level and TCWS No.10 was hoisted.
- 3.7 Table 1 below presents the movements of *the vessel* with respective to the development of the typhoon “Hato” in time sequence.

Table 1: The movements of *the vessel* with respect to the development of the typhoon “Hato”.

Date & time (hours)	TCWS (meaning)	Wind speed (knots)	<i>The vessel's</i> movements
22/8/2017 (0840)	No.1 (standby)	-	<i>The vessel</i> anchored at WA1.
22/8/2017 (1820)	No.3 (strong wind)	-	There was no significant change of <i>the vessel's</i> position.
23/8/2017 (0520)	No.8 (gale/storm)	16.7	There was no significant change of <i>the vessel's</i> position.
23/8/2017 (0700)	No.8 (gale/storm)	24.3	<i>The vessel</i> was rolling and pitching slightly. The master did not notice that the weather was worsening.
23/8/2017 (0800)	No.8 (gale/storm)	31.3	<i>The vessel</i> was rolling and pitching moderately.
23/8/2017 (0810)	No.9 (increasing gale/storm)	40.5	The crew took no notice of the worsening weather condition and did not take any action to prepare <i>the vessel</i> for typhoon “Hato”.
23/8/2017 (0825)			<i>The vessel</i> started dragging her anchor southwesterly from the original anchoring position. The crew were not aware that <i>the vessel</i> was dragging her anchor.
23/8/2017 (0857)			The officer on watch found that <i>the vessel</i> was dragging anchor.

			<p><i>The vessel</i> then reported the incident to VTC by portable 2-way VHF radiotelephone via channel 14. As <i>the vessel's</i> port anchor was malfunctioned, the master informed the chief engineer to start the main engine immediately and ordered the chief officer to keep standby for heaving up the starboard anchor. The master intended to use <i>the vessel's</i> own propulsion power to bring <i>the vessel</i> back to her initial anchor position.</p>
23/8/2017 (0910)	No.10 (hurricane)	42.8	<p><i>The vessel</i> was rolling and pitching heavily and drifting at a speed of 0.5 to 2.5 knots southwesterly towards Siu Kau Yi Chau island.</p>

- 3.8 At about 0925 hours on 23 August 2017, the chief officer and crew were on standby at the forward deck of *the vessel* and were ready to heave up starboard anchor.
- 3.9 At about 0932 hours, the master attempted to bring *the vessel* back to WA1. However, *the vessel* kept on drifting northwesterly at a speed of about 3.0 to 5.0 knots under strong wind.
- 3.10 At about 0953 hours, although *the vessel's* main engine and steering gear system were working properly, *the vessel* was unable to maintain her heading. The master reported to VTC that *the vessel* was out of control and requested tug assistance.
- 3.11 At about 1000 hours, the wind was on east direction with wind speed of about 54.5 knots (force 10 on Beaufort scale). The wave height was about 5.0 m. *The vessel* was struggling against the strong wind using her own propulsion and steering system.
- 3.12 At about 1016 hours, *the vessel* was drifted to the east of the yacht

basin of Discovery Bay Marina Club.

- 3.13 At about 1047 hours, a tug “Hai Tong” as arranged by *the vessel’s* agent arrived on the scene. As *the vessel* was in shallow water area, the tug could not reach *the vessel*.
- 3.14 At about 1051 hours, *the vessel* commenced to drop her starboard anchor. At this time, *the vessel* was drifting to a rock close to the shore near the entrance of Nim Shue Wan.
- 3.15 At about 1111 hours, *the vessel* was still drifting to the northwest direction despite her main engine was running at full power and her starboard anchor had dropped.
- 3.16 At about 1119 hours, *the vessel* hit a rock near the entrance of Nim Shue Wan and continued to move to the north slowly. At about 1126 hours, *the vessel* ran aground on the breakwater near the entrance of the yacht basin of Discovery Bay Marina Club and listed to port side slowly due to water ingress through the breached bottom. *The vessel* was washed up further and closer to the shore. Her forward part finally sat firmly on the seabed without immediate risk of sinking.
- 3.17 Figure 2 shows *the vessel’s* movement track and her final grounding position. Figure 3 shows the photographic image indicating the final grounding position of *the vessel*.

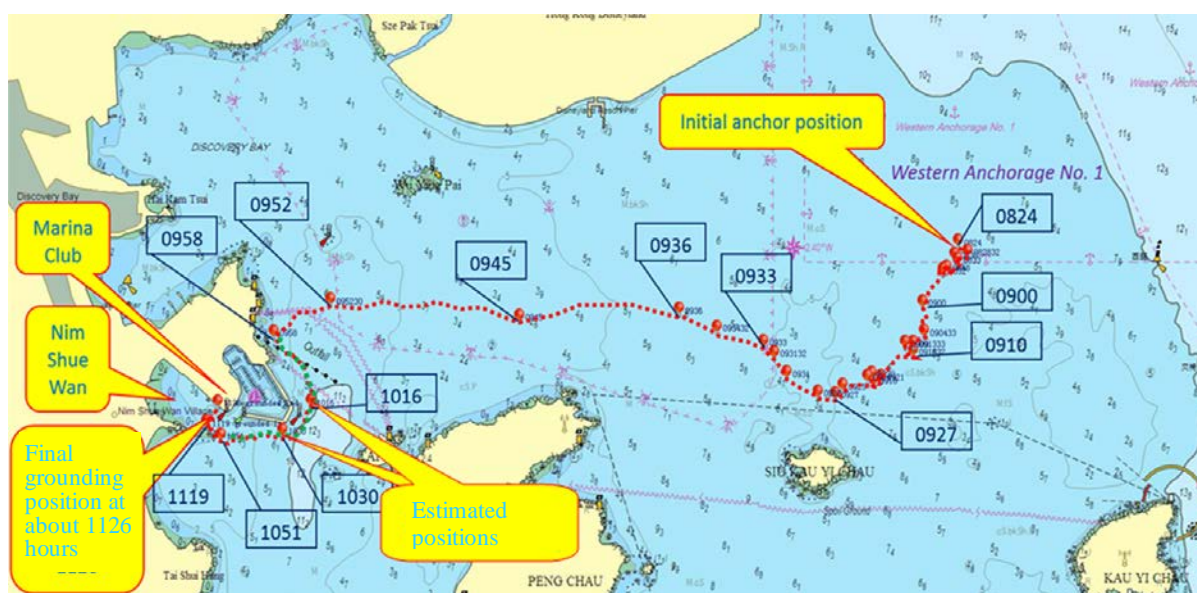


Figure 2: Sketch showing *the vessel’s* movement track and her final grounding position on 23 August 2017.



Figure 4: Photo taken at about 1900 hours on 23 August 2017

- 3.21 The salvage operation commenced in the morning on 26 August 2017. However, *the vessel's* bottom was further damaged by another severe typhoon “Pakhar” on 26 and 27 August 2017. Her bow was eventually submerged in water (Figure 5).



Figure 5: The bow of *the vessel* submerged in water

- 3.22 *The vessel* was salvaged and refloated on 11 October 2017. She was towed for scrapping outside Hong Kong on 26 October 2017.

4. Analysis

Certification of *the vessel* and manning

- 4.1 *The vessel* was registered in Togo and possessed valid Togo's provisional certificate of registry.
- 4.2 *The vessel* was manned by ten crew from Indonesia, Bangladesh and China. The manning scale met the minimum safe manning requirements set by Togo.
- 4.3 The master and officers, except the second officer, held valid licences issued by Togo. The second officer was found without holding valid licence issued by Togo. There was also no evidence to indicate that the second officer had made an application to Togo for a licence.

Working hours and alcohol abuse

- 4.4 The crew stayed on board at WA1 for about 20 days before the incident happened. There was no evidence showing that the crew were affected by either fatigue at work or alcohol and drug abuse.

Unseaworthy condition of *the vessel*

- 4.5 *The vessel* had poor PSC inspection record under the Tokyo MOU¹ PSC Inspection Regime. Between 2013 and 2017, *the vessel* was detained at least once every year (Table 2).

Year	2013	2014	2015	2016	2017
No. of PSC inspection	9	8	10	8	1
No. of PSC detention	2	2	1	1	1

Table 2: Past PSC detention record of *the vessel* under the Tokyo MOU PSC Inspection Regime

¹ Memorandum of Understanding (MOU) on Port State Control in the Asia-Pacific Region (permanent secretary in Tokyo).

- 4.6 As mentioned in paragraph 3.4, HKMD conducted a PSC inspection on 7 August 2017. *The vessel* was found in unseaworthy condition and was detained. The owner and the master were requested to rectify the deficiencies before departure.

Failure of effective implementation of safety management system

- 4.7 Safety management system (SMS) was in place for *the vessel*. Under file No. FG-VSM-011 “Notices to vessel in port”, bridge procedures and responsibilities of an officer on watch in port, including anchor watch, were specified. Relevant sections of the said file are extracted below-

“Anchor watch - Deck Department

- (a) When the vessel is required to anchor at outward anchorage waiting for ..., the officers have to be on watch at the bridge according to the roll of shifts of navigation.*
- (b) The duty officer shall not leave the bridge arbitrarily and shall check the anchor position from time to time, especially when the weather and sea is becoming worse or rough. He shall at least check up on the anchor position once every thirty minutes and to see whether the anchor is dragging or not. He must report to the master if any abnormal shake or situation happens to the vessel.*
- (c) In addition, the duty officers shall be...*
- (d) The duty officers shall keep watch to the VHF and ensure it being ready to receive calls from the pilot, port authority or port agent.”*

Anchor Watch

- 4.8 In accordance with the statement of the master, anchor watch performed by the master, chief officer and third officer were on four-hour rotations. However, the deck logbook entries revealed that they failed to maintain a proper anchor watch with evidence as follows:

- (i) during the time when *the vessel* stayed at WA1, the logbook

entries for anchor watch for many days were completed by one person for the whole day;

- (ii) there were no logbook entries indicating anchor watch had been performed for the periods: (a) from 1200 hours to 2400 hour on 21 August 2017, i.e. the day before typhoon signal No.1 was hoisted; and (b) from 0000 hours to 0800 hours on 23 August 2017, i.e. typhoon signal Nos. 3 and 8 were hoisted; and
- (iii) there were no logbook entries to support that the duty officers had verified the anchor position every thirty minutes as per the procedure mentioned in paragraph 4.7 above.

VHF radiotelephone watch

- 4.9 After HKO issued the TCWS for typhoon “Hato”, VTC of HKMD broadcasted safety messages immediately through very high frequency (VHF) channels 02, 12, 14, 63 and 67 and updated the messages at hourly intervals. The safety messages reminded shipowners, masters and persons-in-charge of vessels to take immediate appropriate precautionary measures to prepare their vessels for the typhoon.
- 4.10 In accordance with Part II of the Shipping and Port Regulations (Cap. 313A), vessels of over 300 gross tonnage within the waters of Hong Kong shall maintain continuous listening watch on the VHF channels appropriate for their respective VHF sectors, i.e. channel 02, 12, 14, 63 or 67. *The vessel* of 1,318 gross tonnage anchored at WA1 is therefore obliged to maintain a continuous radiotelephone watch on channel 14.
- 4.11 As listed in Appendix I, PSC inspection revealed that *the vessel’s* Inmarsat-C², NAVTEX³ and VHF were all malfunctioned. The crew could only use newly supplied portable 2-way VHF radiotelephones to listen to VTC’s broadcast of safety messages. Even with the portable radiotelephones, however, the crew failed to

2 Inmarsat-C is a two-way, packet data service operated by the telecommunications company Inmarsat which operates between mobile earth stations (MES) and land earth stations (LES). The service works with a store-and-forward method which enables interface with data network transfer including; e-mail; weather updates; maritime safety information (MSI); maritime security; GMDSS; and Safety/Emergency alerting, etc.

3 NAVTEX (Navigational Telex) is an international automated medium frequency direct-printing service for delivery of navigational and meteorological warnings and forecasts, as well as urgent maritime safety information to ships.

maintain VHF radiotelephone watch thus missing the broadcasted safety messages with respect to the typhoon. They were only aware of typhoon “Hato” when they reported the dragging anchor situation to VTC via channel 14 at about 0857 hours on 23 August 2017, i.e. the time typhoon signal No.9 had already been hoisted.

- 4.12 Based on the above findings (paragraphs 4.8 – 4.11) and coupled with the results of the PSC inspection (Appendix I), it can be concluded that the SMS on board was a total failure failing to ensure effective maintenance and safe operation of *the vessel*.

Incompetency of the crew

- 4.13 Since the master joined *the vessel* on 27 May 2017, he did not report the malfunction of the port side anchor to the management company for arranging repair. The act of the master was completely amateurish.
- 4.14 During the period at WA1, *the vessel* carried only about 15 tonnes of fresh water and 30 tonnes of fuel oil without any cargo or ballast water. *The vessel* was in a very lightly loaded condition with mean draft of about 1.6 m. As shown in Figure 1 and Figure 4, this loading condition had resulted in producing a large exposed hull area making *the vessel's* movement particularly more susceptible to wind force. As indicated in Table 1, the vessel was rolling and pitching moderately at about 0800 hrs. on 23 August 2017 when typhoon signal No. 8 was hoisted. In any event of a vessel under pitching and rolling condition, irrespective of the typhoon signal, the master and senior officers still failed to take any action to ballast *the vessel* in order to reduce the large exposed hull area for the sake of making *the vessel* less susceptible to wind.
- 4.15 In gist, paragraphs 4.5 – 4.14 have summed up how incompetent the crew were, especially the master and the senior officers. Indeed, the management company also failed in their duties to manage a vessel properly.

5. Conclusions

- 5.1 At about 0825 hours in the morning on 23 August 2017, *the vessel* anchored at WA1 began dragging her anchor southwesterly due to adverse weather condition caused by the super typhoon “Hato”. The master was unable to manoeuvre the ship by its own propulsion power to a safe place. *The vessel* consequently ran aground near the entrance of the yacht basin of Discovery Bay Marina Club and listed to the port side due to water ingress at about 1126 hours. All crew including the master abandoned *the vessel* without injury. *The vessel* was further damaged by another severe typhoon “Pakhar” on 26 and 27 August 2017. *The vessel* was finally refloated in October 2017 and towed away from Hong Kong for scrap after about two months’ salvage operation.
- 5.2 Although it appeared that typhoon “Hato” had led to the grounding of *the vessel*, the root causes of the incident were due to the following factors:
- (i) unseaworthiness of *the vessel* (paragraphs 4.5 – 4.6);
 - (ii) total failure of the SMS on board (paragraphs 4.7 – 4.12); and
 - (iii) incompetency of shipboard crew, especially the master and senior officers (paragraphs 4.13 – 4.15).
- 5.3 The investigation also revealed that the management company failed their duties in managing a vessel properly.

6. Recommendations

- 6.1 A copy of this investigation report should be sent to Togolese Directorate of Maritime Affaires, the flag State of *the vessel*, for:
- (i) their information of the investigation findings and lessons learnt from this incident; and
 - (ii) their consideration to take appropriate actions against the crew and the management company of *the vessel*.
- 6.2 The Marine Department should issue a Marine Department Notice to promulgate the lessons learnt from this incident.

7. Submission

7.1 The draft report has been sent to the following parties for their comments:

- (a) the management company (via the agent) and the master of *the vessel*;
- (b) Togolese Directorate of Maritime Affaires; and
- (c) VTC and PSC of HKMD.

7.2 Comments had been received from VTC of HKMD and the investigation report has been amended as appropriate.

Appendix I - list of deficiencies found in PSC inspection on 7 August 2017

Detainable deficiencies:

1. Large scale harbor charts for Hong Kong waters was not available and chart correction record was not found.
2. Notice-to-Mariners for 2017 and sailing direction for the area of last voyage were not found.
3. Medium-frequency/High-frequency Digital Selective Calling Maritime Radio malfunctioned
4. Inmarsat-C malfunctioned and one of the two required Very high-frequency Digital Selective Calling Maritime Radio was not fitted
5. Batteries were not available for the three pieces of portable 2-way VHF radiotelephone
6. Cargo hold water level detection system malfunctioned
7. Fixed fire detection system malfunctioned
8. Stern navigation light back screen was broken and starboard side navigation light stay bolt was not fitted
9. Speed measuring device (through water) malfunctioned
10. NAVTEX malfunctioned
11. Rescue boat engine could not speed up and re-start.
12. No.4S ballast water tank air vent pipe broken and the air vent head was not found
13. Oil record book was not found
14. Safety management system as implemented on board did not ensure sufficient training, resources and competency of personnel
15. Safety management system as implemented on board did not ensure effective maintenance of the ship

Other deficiencies:

1. Most statutory certificates expired on 7 August 2017
2. Original Continuous Synopsis Record was not found on board.
3. Annual service to portable fire extinguishers, SCBA, and EEBD was not conducted
4. LRIT Conformance Test Report was not recognized.
5. The certificate of the 2/O had no endorsement by Flag and evidence of

applying endorsement to Flag was not available.

6. EPIRB and AIS annual test reports expired
7. Fire control plan, General arrangement plan, Stability booklet, and Table of maximum rate of discharge of untreated sewage did not have approval stamps
8. Damage control plan and Life saving appliance plan were not found
9. The latest version of SOPEP Annex II (updated to 30.09.2016), the list of ship interest contact and the list of oil spill response equipment and materials on board were not found
10. Familiarization training record for new joint crew on 4 Aug 2017 was not found
11. Records of fire drill, abandon ship and oil spillage expired
12. Deck logbook was not recorded on daily basis
13. Passage plan for last voyage was not conducted
14. Radiocommunication ITU publications including Manual for use, List IV and List V were not found
15. GMDSS Logbook was not found
16. Port side bridge wing MOB lifebuoy line connecting the smoke/light signal was broken
17. The crew were not familiar with the operation of BNWAS
18. The crew were not able to find out the name and contact of the designated person ashore of the safety management system
19. The GPS unit on board was not able to show the ship courses clearly
20. Gyro compass repeater malfunctioned
21. Alarm set off on bridge console when steering control was put in manual mode
22. The crew were not able to test the SART
23. Standard magnetic compass on compass deck had deficiency
24. One antenna on compass deck was broken
25. Rescue boat compass was broken
26. Rescue boat launching davit limit switch was defective and the davit fall chains had substantial wastage
27. Rescue boat embarkation ladder forward stanchion wasted at the stay
28. A section of handrail chain was not found at the following locations: port side liferaft; starboard shipside close to accommodation block
29. P&S shipside handrail stanchions were not supported with brackets at the bottom
30. An outdoor diesel generator was fitted without reflecting on general

Arrangement Plan and Fire Control Plan by classification society.

31. The associated electrical cable of the outdoor diesel generator penetrated through E/R skylight coaming affecting the weather tightness
32. One fire hose at stern leaked
33. On starboard main deck, two fire hydrant hand wheels were wasted
34. Emergency fire pump was not able to produce sufficient water pressure
35. The portable power source of daylight signaling lamp was not found
36. SOLAS Training Manual was not specific to the appliances on board

- End -