



REPUBLIC OF TURKIYE
UNDERSECRETARIAT FOR MARITIME AFFAIRS
Marine Accident Investigation Commission



Report on the Investigation of The Fire Onboard

KAYHAN-9



Muğla / Nar Island
28 July 2010

2012



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PURPOSE

The main purpose of this investigation is to identify the factors causing the accident, with the aim of improving the safety of lives of personnel and passengers at sea, preventing similar accidents in the future and enhancing safety of navigation. It is not the purpose to apportion liability, nor to apportion blame to anyone or any party.

NOTE

This marine accident is investigated in accordance with the Marine Accident Investigation Act, which came into force after being published in the Official Gazette with reference number 26040 on 31.12.2005.

This report is not written with apportionment of liability in mind and is not intended to be used in court of law. It endeavours to identify and analyze the relevant safety issues pertaining to the specific accident, and to make recommendations aimed at preventing similar accidents in the future.

The report is pursuant to Regulation 6 of Chapter XI-1 of the International Convention for the Safety of Life at Sea (SOLAS) and the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code) (Resolution MSC.255(84)).

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SUMMARY



Picture 1: The location of the accident

All times used in this report are Turkey Local Mean time (GMT+3)

At 11:00 on 28 July 2010, Turkish registered, commercial yacht KAYHAN-9 was on passage from Marmaris port to the port of Göcek with 5 crew and 18 passengers on board.

At 13:00, the yacht anchored at Dişibilmez Bay where the passengers had lunch, swam and enjoyed the sea, at 17:00 the yacht proceeded to the port of Göcek. At about 17:50, a fire was detected in one of the passenger cabins when the yacht was near to Nar Island, which is located in the purview of Göcek Harbour Master's Office. The fire started due to an unknown reason. Although the crew started the fire-fighting effort, the fire spread rapidly into the lounge of the yacht and spread up to the deck since the commercial yacht was made of wood.

After realising that the fire could not be extinguished, the Master made the announcements to the passengers and to the crew to evacuate the ship. After some crewmembers and passengers jumped into the sea, they got into the boat, which was placed in the aft side of the ship. Other ones took hold of the lifeline after jumping into the water. However, one passenger was held in the aft side of the burning ship, and she could not be reached because of intense flames and heavy smoke.

After 15 minutes, 1 crew member and 10 passengers were taken to the port of Fethiye by the sailboat "Star Sapphire" which was in the vicinity, and other crew members and passengers taken from the sea brought to the port of Fethiye by the boat of Turkish Coast Guard Command. The Spanish missing passenger, Paloma Galvez Petersen could not be found despite all efforts.

SECTION 1- FACTUAL INFORMATION

1.1 Particulars of KAYHAN-9 and Accident

Vessel Details

Registered Owner	: Kaptan Yatçılık Turizm San. Ve Tic. A.Ş.
Operator	: Kaptan Yatçılık Turizm San. Ve Tic. A.Ş.
Port of Registry	: İzmir
Flag	: Turkish
Call Sign	: YM 6693
Type	: Commercial Yacht
Year of Built	: 03.03.2000
Length Overall	: 35,25 meter
Breadth	: 7,96 meter
Depth	: 3,98 meter
Gross Tonnage	: 149
Net Tonnage	: 45
Transport Capacity	: 24 (Life boat total capacity)
Main Engine	: Caterpillar
Main Engine Power	: 2 x 542 Bhp
Departure/Arrival port	: Marmaris - Göcek

Accident Details

Date and Time	: 28 Temmuz 2010 / 17:50
Location of Incident	: Off the Nar Island / Muğla
Coordinate	: 36° 37'42" N 028° 45' 48" E
Persons on Board	: 5 Crew members + 18 passengers
Injuries/ Fatalities	: 3/1(Missing)
Damage	: Total Loss
Pollution	: -



Picture 2: Kayhan-9

1.2 The Course of the Accident

At 11:00 on 28 July 2010, the commercial yacht KAYHAN-9, which is registered to the port of Izmir, was on her passage from Marmaris port to the port of Göcek with 5 crew and 18 passengers on board. At 13:00, the yacht anchored at Dişibilmez Bay as a part of the daily programme where the passengers had lunch, swam and enjoyed the sea. At 17:00, the yacht heaved up anchor and proceeded to the port of Göcek.

At about 17:50, when the ship was near to Nar Island, situated 10 miles southeast of Sarigerme (Position: 36° 37'42" N 028° 45' 48" E), the cook was in the lounge and detected a burning smell. When he followed the smell, which was coming from the fore side, the cook saw the smoke leaking under the door of a passenger cabin. In the meantime, the passengers and crew were on the main deck. When the cook opened the cabin's door, he saw that the opposite wing of the cabin was burning, and he made the first response to fire by using the portable fire extinguisher. Afterwards, the cook informed the Master and other 2 crew members on the main deck. Some of the passengers also felt the burning smell coming from the cabin and informed the crew. The crewmembers tried to extinguish the fire with portable fire extinguishers. As they considered that the fire started because of electrical contact, they immediately stopped the main engine and generators, and made a fire call to the Coast Guard Command via wireless.

Since the ship was made of wood and most parts were varnished, the fire rapidly spread from the cab section into the lounge and spread up to the deck of the ship. The fire pumps, which are in the engine room and under the foreside of the yacht, could not be reached because of intense flames and heavy smoke. The fire-fighting effort was only performed with portable-fire extinguishers. However, they were inefficient in extinguishing the fire.

Because of the heavy smoke and intense flames, it was not possible to reach the service boat and life-saving tools (life boat, life jacket and lifebuoy). Then, the Master made the announcements to the passengers and to the crew to evacuate the ship. The 67 year-old female passengers was in the aft side of the burning ship, and she could not be reached because of intense flames and dense smoke. Although she was warned to jump into the water to save herself, no answer was received from her, and so it is uncertain whether she jumped into the water or not. Except her, all passengers and crewmembers jumped into the water. Some of them reached to the inflatable boat and other ones took hold of the lifeline around the boat.

15 minutes after the accident, the English registered sailing boat “Star Sapphire”, which was sailing near to the scene of the accident, approached to KAYHAN-9 for help. 1 crewmember and 10 passengers were pulled from the water and taken to the boat. The other 4 crew members and 7 passengers at sea were rescued with the boat of Coast Guard Command at about 19:00. All accident victims were brought into the Port of Fethiye.

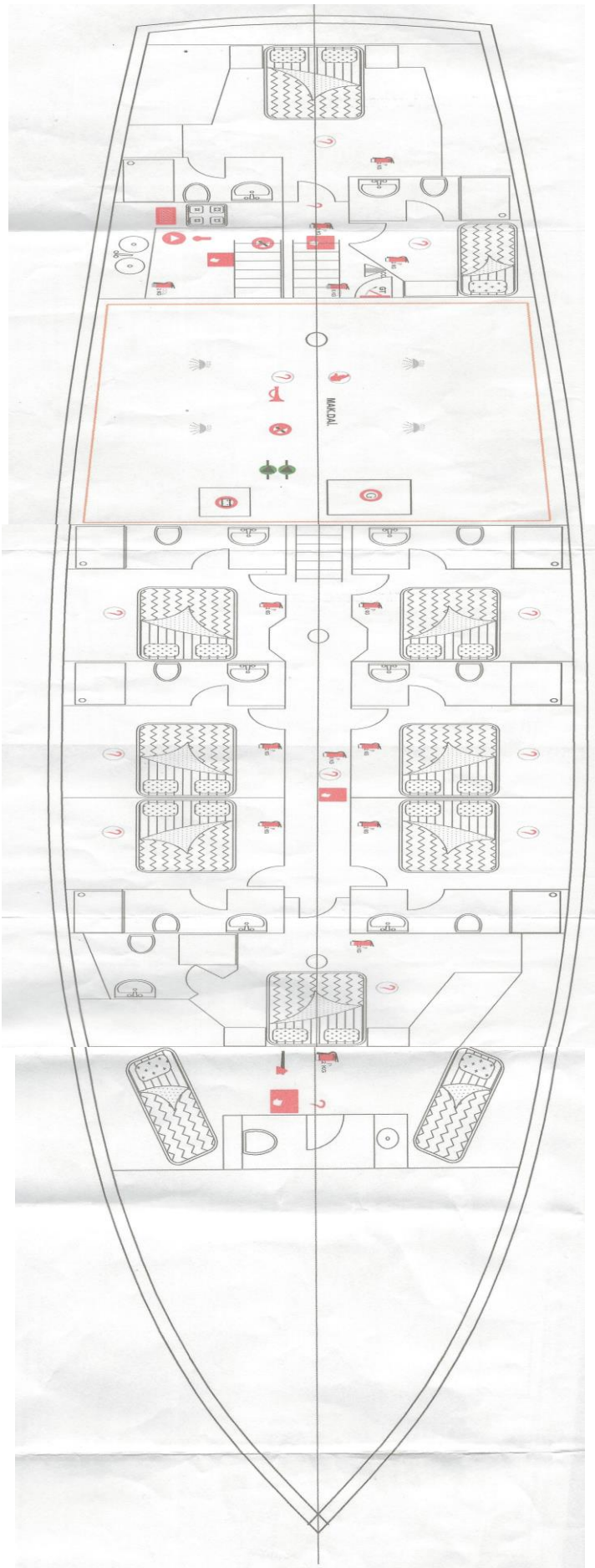
In the meantime, fire-fighting helicopter tried to extinguish the fire, but the effort was not sufficient to control the fire. As a result, yacht completely burned sank at 22:10.

After the accident, the Spanish missing passenger, Paloma Galvez Petersen could not be reached despite all efforts deployed in the area. The Master and a passenger suffered from second-degree burns. Another passenger suffered an injury caused by ankle twisting. After they were brought into the Port of Fethiye, the survivors were taken to health care facilities for necessary treatment.

1.3 Fire-fighting Systems and Life Saving Equipment

As a result of the underwater survey and shaft survey on 27 February 2010 and marine survey on 13 April 2010, sea worthiness certificate, which would be valid until 26 February 2015, was issued for the commercial yacht. There were 3 life-rafts on deck with a total capacity of 24 person and a service boat with an 8 person capacity on the aft side of the ship. In addition, there were life jackets (28 adults+ 2 children) in cabins and mess rooms, and 6 lifebuoys on deck. At the time of the fire, it was not possible to use life-saving equipment due to intense flames and heavy smoke.

There were 2 fire pumps on board, one of which was in the engine room and the other one was in the forepart of the ship. A fixed fire-extinguishing system (Halocarbon), which was directed to the engine room, was also available. In addition, there are 15 portable fire-extinguishers with different types in the engine room and in the accommodation. The fire pumps could not be reached and used because of intense flames and heavy smoke. Therefore, the fire-fighting effort was only performed with portable-fire extinguishers. In addition, there were smoke detectors (fire detection system) in all cabins and in the engine room. However, the audio alarm devices were fitted on the detectors, and the system, which enables the alarms to be heard in the whole ship, was not available.



Picture 3: Fire safety plan

1.4 Environmental Conditions

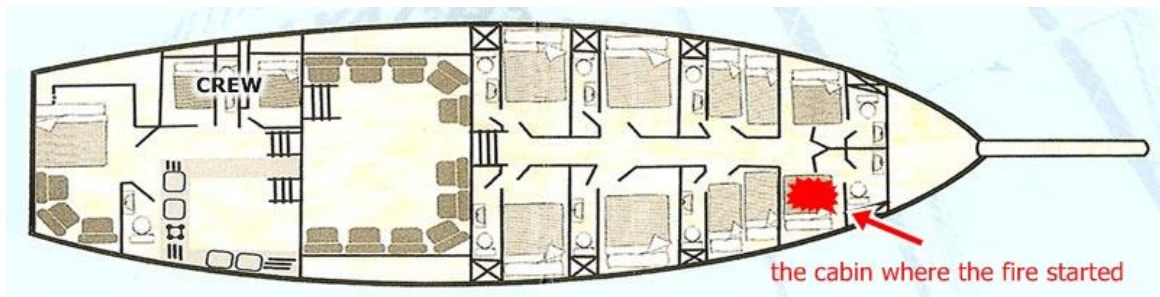
At 20:10 on 28 July 2010, the weather was partly cloudy, and the vision was quite clear. The wind was blowing from west and southwest with beaufort force 3-5 and the sea was wavy (sometimes between 0.5-1 meter).

In the Bay of Dişibilmez, the Master heaved up anchor to go to a safer place since the passengers demanded to move on because of the wavy sea. During the navigation, except for a few people on the fore side of the deck, the rest of the passengers and crewmembers were on the aft side of the deck due to the waves coming from ahead.

SECTION 2 – ANALYSIS

2.1 Possible Cause of Fire

KAYHAN-9 was totally burnt before sinking so that the ship could not be examined about the outbreak of the fire. By taking into consideration the visual statements of the crew and passengers, it is estimated that fire began in starboard side first cabin in the fore part of the vessel. It was a passenger cabin and there was nobody inside during the fire.



Picture 4: The location of the fire

As it is hard to hear the alarm sound of the smoke detector outside the cabin when the door is closed neither crew nor the passengers alarmed. It is considered that probable causes of the fire are; a cigarette butt left in the cabin, an electrical device that was plugged in the cabin (e.g. a cellular phone or a battery charger) or a short circuit in a device or the electrical connections of a device that was installed in the cabin. None of them are proved but these were considered as potential causes of the fire.



Picture 5: KAYHAN-9 main deck

2.2 Fire Detection System

The National Technical Regulation of Vessels does not force the installation of fire detection system (smoke or heat detector) for the passenger cabins in the commercial yachts. In KAYHAN-9, the alarms were attached to the detectors, and the system, which enables the alarms to be heard in the whole ship, was not available. Therefore, the door of the cabin where the fire started was closed, and all the crew and passengers except one were above the deck so alarm sound could not be heard and caused a delay in the detection of fire.

2.3 Malfunction in Electrical Equipment

On 25 July 2010 KAYHAN-9 anchored in a bay and received technical support for the malfunction of two of the Air Condition equipments found in two different cabins. The technical service team checked both of the air condition units and managed to repair the unit that was found in the cabin where the fire had started.

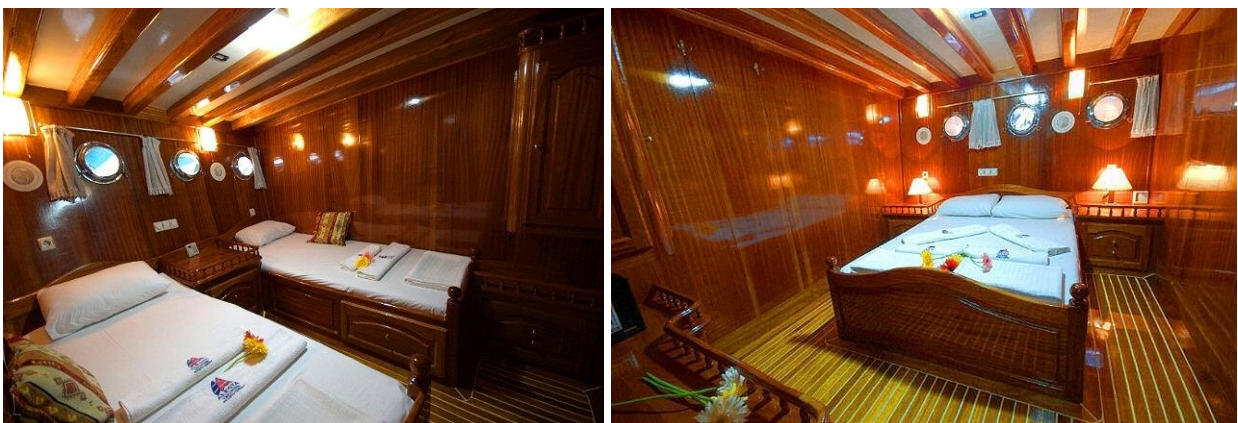
2.4 The Crew's Response to the Fire

All of the crewmembers were trained in fire prevention and fire fighting, and they were certificated. However, the way they respond to the fire at the moment of fire detection was partly defective. Immediately after the cook realized the smoke leaking under the door of a passenger cabin, he went to open the door to understand the source of the smoke, which caused the oxygen to release into the cabin and triggered a faster spread of fire. Furthermore, he could have been severely injured because of the spreading fire when he uncontrollably opened the door.

After realizing the smoke leakage, the cook should have immediately informed the master and controllably detected the existence of fire in the cabin. Then, the passengers should have been taken to a safe area in a calm and quick manner. Moreover, the fire pumps and fire-fighting hoses should have been used. All these actions would have been more effective in fighting the fire.

2.5 Panic among the Passengers and the Crew Members

Because of the vessel was made of wood and completely varnished and there was a lack of an alarm system that can be heard from the main deck and bridge, the fire suppressed very fast, and a very thick smoke covered the entire vessel in a very short time. This caused panic and anxiety among the crew and the passengers.



Picture 6: Fully varnished interior design

The crew on board was performing fire fighting and abandon ship drills at certain intervals but at the time of fire as the fire suppressed very fast the crew was considered inadequate in fire fighting and emergency response. It would be more effective to inform the master and organise the fire response team before opening the door of the cabin.

Before sailing the master of the vessels gives a brief to passengers about the safety issues although it will be a better practice to prepare a standard form of familiarization sheet, which also emphasise the access, and the use of life-saving appliances and fire prevention on board (smoking prohibition in the cabins and unplugging electrical devices). It is crucial for the crew and passengers to be aware of the potential fire hazards and ways of preventing them on board. Being prepared will also cause less panic and a more organised response.



Picture 7: Aerial views during the fire

SECTION 3 - CONCLUSIONS

Safety issues directly contributing to the accident have been addressed below;

3.1 As the alarm of fire detection system could only be heard in the cabin where the fire started, none of the crew was alerted to the dangerous situation and they were late for an effective response to the fire.

3.2 Since the ship was made of wood and most parts were varnished, the fire started to spread rapidly, so the fire could not be taken under control.

3.3 The crewmember, who first detected the fire, tried to extinguish the fire by his own means instead of directly informing the Master, which negatively affected the course of the accident.

3.4 As the fire-fighting effort was only performed with portable-fire extinguishers instead of fire pumps in the engine room, an effective response to the fire was not possible, which caused the fire to spread rapidly.

3.5 There was panic and fear among the passengers and the crewmembers, which adversely affected the fire fighting efforts.

3.6 Because of the heavy smoke and intense flames, it was not possible to reach the service boat and some of the life-saving appliances (life boat, life jacket and lifebuoy).

SECTION 4- RECOMMENDATIONS

4.1 The Maritime Administration is recommended to;

4.1.1 Ensure that the wooden passenger ships to have a fire detection system in the passenger cabins and other closed areas as well as engine rooms. The administration should also ensure that the fire alarm could be heard in the whole ship.

4.1.2 Increase the number of periodical and unscheduled surveys for the passenger ships in order to routinely ensure the safety of ships for sailing. The maritime administration is also recommended to continue to detain the ships from sailing without any tolerance in case of the identification of non-conformity and deficiencies in life safety issues.

4.1.3 Examine the crewmembers' abilities and knowledge in fire-fighting and ship abandonment during surveys. If a crewmember is found less efficient or unfamiliar, he/she should be trained for fire-fighting and ship-abandonment courses once again.

4.2 The Operating Company (Kaptan Yatçılık Turizm San. ve Tic. A.Ş.)

is recommended to;

4.2.1 Ensure that the crewmembers working for the management company are regularly trained for safety of life and property at sea (particularly in the issues of fire-fighting and effective use of life-safety equipment). Apart from the audits and surveys, which are performed by the administration, a qualified technical official of the company should also perform additional audits of their ships' fire-fighting equipment and life-saving tools.

4.2.2 To prepare a standard form of familiarization sheet to be used to inform the passengers before sailing, which also emphasise the access, and the use of life-saving appliances and fire prevention on board (smoking prohibition in the cabins and unplugging electrical devices).

4.2.3 check all the electrical installations and equipment installed in the cabins of the entire fleet.

4.2.4 Install a system to the entire fleet, which will enable the fire alarms to be heard in the whole vessels.

Safety recommendations shall in no case create a presumption of blame or liability.