

INJURY AND EXTENSIVE DAMAGE DUE TO CABIN FIRE

A FIRE OCCURRED ONBOARD A 2,565 GT GENERAL CARGO SHIP, CAUSING EXTENSIVE DAMAGE AND INJURING ONE CREW MEMBER. FORTUNATELY, NO LIVES WERE LOST.

WHAT HAPPENED

During a layover in Gibraltar for bunkering and minor repairs, the crew had the opportunity to go ashore. One of the crew members (AB2) consumed alcohol before returning to the ship, which then resumed its journey to Belfast. Later that evening, AB2 retired to his cabin located on the starboard aft side of Deck 2.



FIGURE 1 IMAGE OF GENERAL CARGO SHIP
SOURCE SHIP DETAILS (IHS.COM)¹

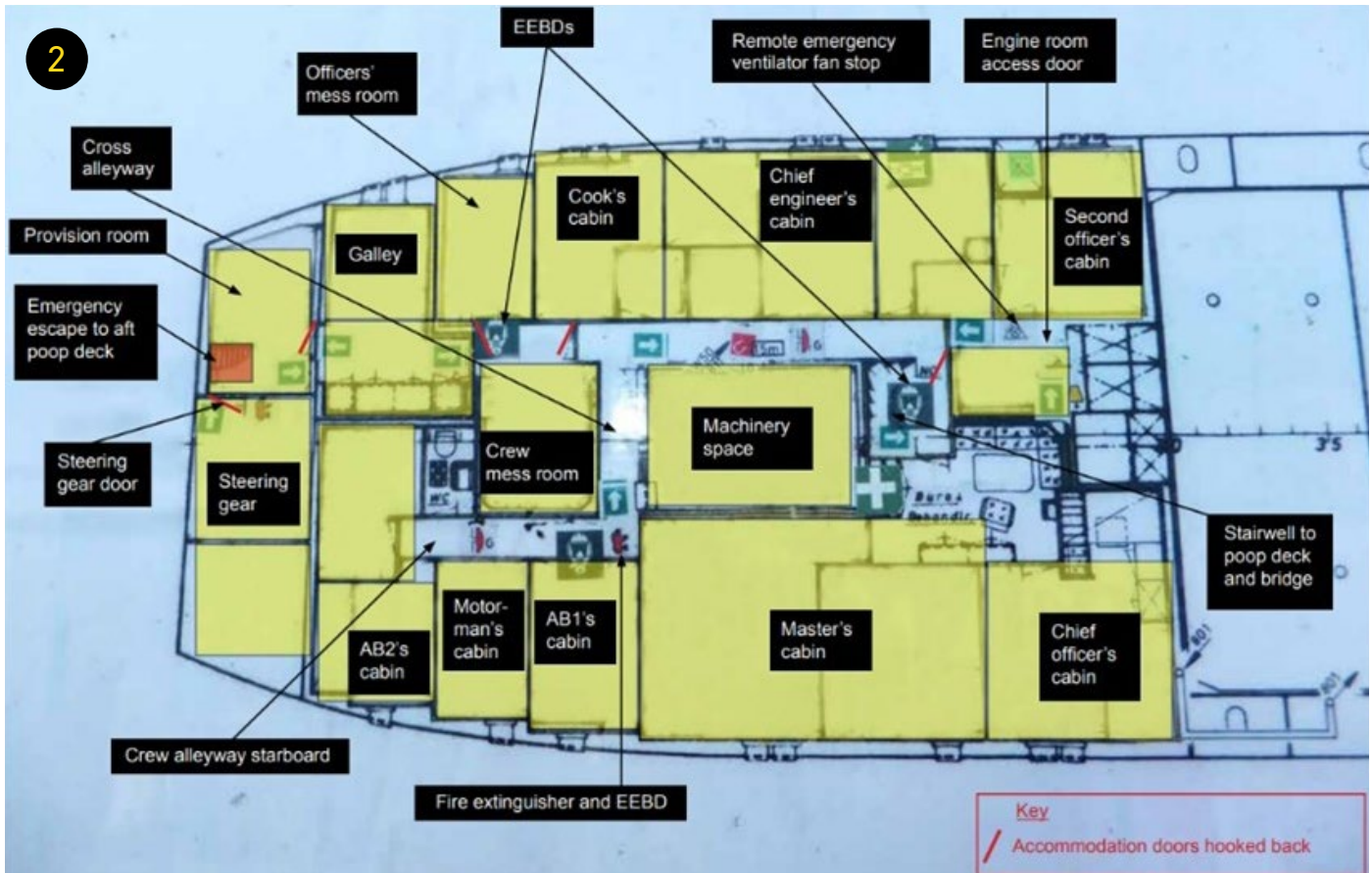


FIGURE 2 DECK 2 ACCOMMODATION LAYOUT
SOURCE MARINE ACCIDENT INVESTIGATION BRANCH - GOV.UK: ACCIDENT INVESTIGATION REPORT 18/2014²

¹ IHS Maritime, S&P Global: <https://maritime.ihs.com/Ships/Details/Index/8516287>

² MAIB Report 18/2014: https://assets.publishing.service.gov.uk/media/547c6f34ed915d4c0d00001b/Celtic_Carrier.pdf

The crew member (AB2) opened the porthole in his cabin, a common practice onboard due to the ship's unreliable and noisy ventilation system, which often drew dust into the cabins. He then spent some time drinking beer (approximately 6-8 units of alcohol) and smoking cigarettes, continuing these activities after getting into bed. It is presumed that a lit cigarette fell onto the adjacent sofa, which was made of highly flammable synthetic materials. A fire quickly spread in the confined, material-rich environment of the cabin. During the subsequent investigation, items such as papers, lighters, and a plastic container of paint thinner were reported to have been present.

At approximately 0315, the crew member awoke to pain in his right hand and leg, finding his cabin engulfed in smoke and flames. In a panicked and partially dressed state, he threw an already burning blanket from the sofa onto the fire and ran to the bridge to report a fire, failing to properly close the cabin door as he left. At approximately 0317, the ship's second officer (2/O) proceeded to Deck 2 from the bridge to confirm the incident. After seeing smoke in the alleyway, he sounded the general alarm and initiated the muster protocol.

After mustering, the crew deployed three fire hoses and attempted to control the situation. The chief engineer (C/E) and motorman accessed the engine control room via an emergency hatch, shutting down certain systems (ventilation fans and electrical power to the accommodation) to prevent fire spread and started the fire/ballast pump and emergency generator. Other crew members closed ventilation dampers and prepared self-contained breathing apparatus (SCBA).

The 2/O and another crew member (AB1) wearing SCBA re-entered the accommodation area through the aft emergency escape hatch. They navigated through various compartments such as the provision room, galley, and crew mess room, under extremely hot conditions and poor visibility due to thick black smoke, continuously spraying water to manage the fire. Concerned about their remaining air supplies, they eventually withdrew just as their air ran out. A second attempt to enter was made by AB1 but it was cut short due to increasing temperatures.

With the chief officer's (C/O) approval, the 2/O directed the crew to set up a stage along the starboard side of the ship near AB2's cabin porthole. From here, AB1, equipped with various safety gear, managed to direct a fire hose into AB2's cabin through the porthole. Whilst the master coordinated this from the bridge, receiving updates on the firefighting efforts, smoke and flames were seen from AB1's cabin porthole. As the crew adjusted the stage along the starboard side, they observed a red glow and closed conditions in the motorman's cabin. Due to intense heat from AB1's cabin, multiple attempts were required to effectively aim the fire hose. Further concerns arose, around 0600 when the C/E noticed excessive water draining into the engine room, leading to the decision to stop the fire/ballast pump and postpone further inspections until daylight. Additionally, a power outage resulted in steering gear failure.

Shortly after 0800, as only vapour was observed from the cabin portholes, the master, C/O and C/E agreed that it was safe to re-enter the accommodation. They opened the poop deck door, fire dampers, and restarted the ventilation fans to assist the entry. The 2/O and AB1, equipped with SCBA, entered through the aft emergency escape hatch without a fire hose or extinguishers. With improved visibility and reduced temperature inside, they inspected the cabins: AB1 found his cabin partially damaged but still hot. AB1 checked the motorman's cabin and noticed minimal fire damage but felt considerable heat from AB2's cabin and returned to the deck.

By 0904, the master informed the shipowner about the cabin fire, water accumulation, and the unserviceable steering gear. The owner arranged tug assistance in response. However, the fire reignited in the motorman's cabin less than an hour later, leading the crew to stop the ventilation and attempt to douse the fire through the porthole, unsuccessfully. The situation escalated, prompting an emergency call to the Maritime Rescue Co-ordination Centre (MRCC) by 1007. The MRCC then coordinated a response with nearby vessels.

Preparatory evacuation measures were taken by the crew. On deck, the life raft, immersion suits, search and rescue transponder (SART) and pyrotechnic flares were prepared. At 1025, the 2/O activated the ship's Electronic Position Indicating Radio Beacon (EPIRB), though this was subsequently cancelled by the master at 1046.

By 1050, a naval ship had deployed fire teams to board and address the fire. Another merchant ship then arrived to provide support followed by a coastguard ship shortly afterwards.

By 1133, the navy teams were prepared to tackle the fire directly through planned entry points, while the merchant ship departed shortly afterwards. The fire was brought under control by 1226 and finally extinguished.

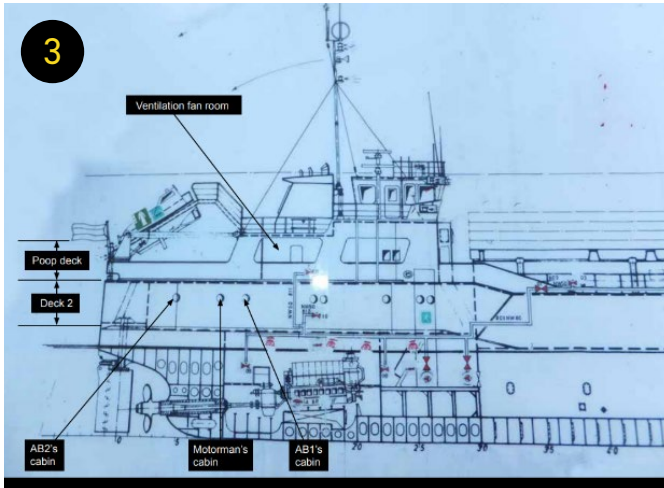


FIGURE 3 VESSEL AFT SECTION PROFILE

SOURCE MARINE ACCIDENT INVESTIGATION BRANCH – GOV.UK: ACCIDENT INVESTIGATION REPORT 18/2014²

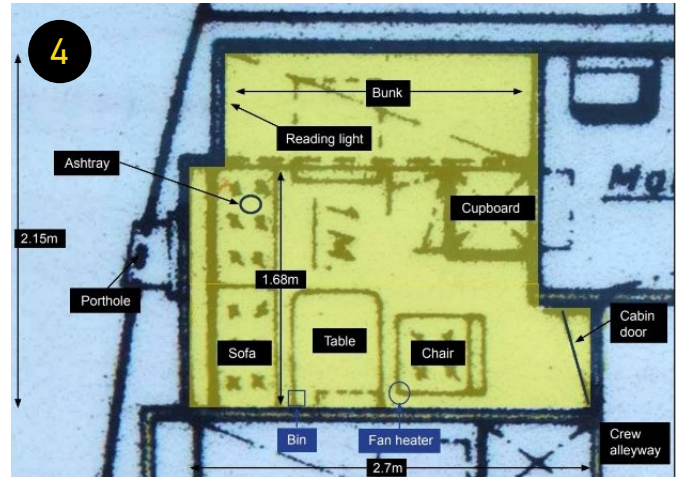


FIGURE 4 LAYOUT OF AB2'S CABIN

SOURCE MARINE ACCIDENT INVESTIGATION BRANCH – GOV.UK: ACCIDENT INVESTIGATION REPORT 18/2014²



FIGURE 5 AB2'S FIRE-DAMAGED CABIN

SOURCE MARINE ACCIDENT INVESTIGATION BRANCH – GOV.UK: ACCIDENT INVESTIGATION REPORT 18/2014²

BRITANNIA COMMENTARY ON INCIDENT

THE INVESTIGATION AND SUBSEQUENT CASE STUDY IDENTIFIED SEVERAL CONTRIBUTING FACTORS AND LESSONS LEARNED.

DESIGNATED SMOKING AREA ON BOARD

The company's policy mandated that specific areas for smoking be designated on its vessels. However, these areas were not clearly defined by the ship's master. By only identifying areas where smoking was prohibited, such as the galley and mess room, it may have implicitly allowed smoking in other parts of the accommodation. It would have been prudent to officially designate crew cabins as non-smoking areas.

IMPAIRED JUDGEMENT AND DECISION-MAKING

There was no evidence that the crew member's 'fatigued' state, which caused him to fall asleep with a lit cigarette, was due to work-related scheduling or hours. The fire was allowed to develop significantly before any counter measures could be employed. Therefore, the effectiveness of the early response was likely to be critically undermined by the crew member's impaired condition due to alcohol. Alcohol consumption can impair judgment and reasoning.

It is unknown if the crew routinely smoked in bed, but the crew member had exceeded the company's specified limit of 4 units of alcohol per day. It is probable that alcohol consumption influenced his decision to smoke in bed and almost certainly contributed to him falling asleep with a lit cigarette.

The open porthole delayed the buildup of smoke in the cabin, however, it also helped the fire grow by drawing in oxygen from outside. This, combined with the crew member rushing out and not properly closing the door behind him (another source of oxygen), further fuelled the fire.

CREW RESPONSE AND MISSED FIRE CONTAINMENT MEASURES

The crew's delayed awakening meant that the fire had already advanced. Had the porthole been promptly shut, cabin door been closed, or a portable fire extinguisher been used, the fire may have been contained. However, the effects of alcohol and burn injuries hindered AB2's ability to respond properly, leading to his ineffective actions.

Although some crew members believed there was enough time to dress before evacuating their cabins, none took a lifejacket. AB1 felt it was safer to escape through his open cabin porthole rather than using the alleyway. No one thought to use an Emergency Escape Breathing Device (EEBD) to assist with breathing, nor did anyone activate the remote emergency ventilation fan stop located near the second officer's cabin. Additionally, no effort was made to close the internal doors to contain or slow the spread of fire.

IMPROVISED VENTILATION AND FIRE HAZARDS

The ship's ventilation system was unreliable and noisy. Crew members frequently resorted to opening portholes to provide fresh air. In this case, while opening the porthole was effective in providing airflow, it also contributed to the rapid spread of the fire in the crew member's cabin. External oxygen continued to flow in through the open porthole intensifying the flames and accelerating the fire's spread.

A more robust approach to maintaining and upgrading ventilation systems, along with crew training on fire hazards related to ventilation, could prevent such incidents in the future.

CONTINUED ON NEXT PAGE

BRITANNIA COMMENTARY ON INCIDENT (CONTINUED)

EFFECTIVE COMMUNICATION

Clear communication during emergencies is crucial. When the crew assembled on the poop deck, it provided an opportunity to gather critical information about the fire. Without a clear assessment of the fire's scope, its potential cause, the status of doors and openings, or any prior fire-fighting actions, any subsequent fire response plan would have been suboptimal and may have put lives at risk.

There were also delays in alerting external authorities. Despite the company's Emergency Response Team (ERT) being available, the master did not contact them until nearly six hours after the fire had started, under the mistaken belief that the fire had been extinguished. Additionally, the territorial waters' MRCC was only notified when the fire re-ignited. By failing to contact both the ERT and MRCC early, the master missed out on vital external assistance, including the potential deployment of precautionary resources to help manage the emergency. This hesitation and the premature cancellation of the EPIRB suggest gaps in assessing the severity of the situation or a general reluctance to involve authorities when hazardous situations arise.

Regular drills and clearer protocols for crisis communication should be implemented to prevent such issues in the future, ensuring better coordination and more timely decisions during emergencies.

TRAINING

During the incident, proper coordination between the crew, the MRCC, and external assistance was eventually established, but the delays and missteps indicate that reinforcing communication protocols through regular drills and scenario-based training could enhance preparedness.

There are many questions around the practices employed. For example, after the first entry to the accommodation in SCBA, AB1 attempted another entry alone. Also, the 2/O and AB1 entered without a fire hose or portable extinguisher during a later exploratory entry. Both of these actions are indicative of poor procedures and knowledge.

Although the ship's structural fire protection was adequate to contain the fire and the firefighting equipment functioned effectively, the delay in extinguishing the fire can likely be attributed to the crew's insufficient preparedness for the emergency. While the firefighting efforts highlighted a mix of quick thinking and notable gaps in training, the investigation also revealed irregularities and gaps in conducting and documenting emergency drills, as well as in inspecting and maintaining onboard safety equipment. The falsification of some emergency drill entries in the Official Logbook raises doubts about the accuracy of other records on board.

Emergency fire drills are mandatory for clear reasons. The deliberate neglect of fire drills, along with the falsification of records, indicates a complacent attitude toward safety on board. The failure to conduct regular, thorough drills could have placed the crew's lives in danger.

CONTACT

For more information on this incident email lossprevention@tindallriley.com

THIS CASE STUDY IS DRAWN FROM THE INVESTIGATION REPORT PUBLISHED BY UK Marine Accident Investigation Branch (MAIB).
https://assets.publishing.service.gov.uk/media/547c6f34ed915d4c0d00001b/Celtic_Carrier.pdf

THE PURPOSE OF THIS CASE STUDY IS TO SUPPORT AND ENCOURAGE REFLECTIVE LEARNING. THE DETAILS OF THE CASE STUDY MAY BE BASED ON, BUT NOT NECESSARILY IDENTICAL TO, FACTS RELATING TO AN ACTUAL INCIDENT. ANY LESSONS LEARNED OR COMMENTS ARE NOT INTENDED TO APPORTION BLAME ON THE INDIVIDUALS OR COMPANY INVOLVED. ANY SUGGESTED PRACTICES MAY NOT NECESSARILY BE THE ONLY WAY OF ADDRESSING THE LESSONS LEARNED, AND SHOULD ALWAYS BE SUBJECT TO THE REQUIREMENTS OF ANY APPLICABLE INTERNATIONAL OR NATIONAL REGULATIONS, AS WELL AS A COMPANY'S OWN PROCEDURES AND POLICIES.

REFLECTIVE LEARNING MATERIAL ON NEXT PAGE

REFLECTIVE LEARNING MATERIAL - INJURY AND EXTENSIVE DAMAGE DUE TO CABIN FIRE

THE QUESTIONS BELOW WILL HELP YOU TO REVIEW THE INCIDENT CASE STUDY EITHER INDIVIDUALLY OR IN SMALL GROUPS. IF POSSIBLE, DISCUSS YOUR CONCLUSIONS WITH OTHERS, AS THIS IS AN EFFECTIVE WAY OF THINKING ABOUT THE ISSUES IN MORE DEPTH.

PLEASE USE THE INFORMATION PROVIDED IN THE CASE STUDY TOGETHER WITH YOUR OWN EXPERIENCES AND THOUGHTS, TO REFLECT ON THE INCIDENT AND HOW THE ISSUES IDENTIFIED MIGHT RELATE TO YOUR OWN SITUATION.

WHAT DO YOU THINK THE IMMEDIATE CAUSE OF THE INCIDENT WAS?

WHAT OTHER FACTORS DO YOU THINK CONTRIBUTED TO THE INCIDENT?

INJURY AND EXTENSIVE DAMAGE DUE TO CABIN FIRE

WHAT DO YOU BELIEVE WERE THE BARRIERS THAT SHOULD HAVE PREVENTED THE INCIDENT FROM OCCURRING?

CONSIDERING THE RE-IGNITION OF THE FIRE, WHAT ADDITIONAL FIRE SUPPRESSION MEASURES OR TECHNIQUES COULD HAVE BEEN DEPLOYED TO CONFIRM THAT THE FIRE WAS FULLY EXTINGUISHED DURING THE INITIAL RESPONSE?

WHAT SPECIFIC TRAINING OR DRILLS COULD HAVE BETTER PREPARED THE CREW FOR THIS INCIDENT, AND HOW MIGHT THIS HAVE INFLUENCED THE OUTCOME?

INJURY AND EXTENSIVE DAMAGE DUE TO CABIN FIRE

WHO SHOULD THE SHIP HAVE NOTIFIED/ALERTED IMMEDIATELY UPON SUCH CASES OF FIRE?

INJURY AND EXTENSIVE DAMAGE DUE TO CABIN FIRE

NOTES