

**Departmental investigation
into the collision between
the German flag container ship
COLUMBUS VICTORIA
and the Liberian flag chemical tanker
SAMPET HOPE
in Port Phillip Bay, Victoria
on 17 November 1996**

Navigation Act 1912
Navigation (Marine Casualty) Regulations
Investigation into the collision between
the German flag container ship
COLUMBUS VICTORIA
and the Liberian flag chemical tanker
SAMPET HOPE
in Port Phillip Bay, Victoria
on 17 November 1996
Conducted in conjunction with the
MARINE BOARD OF VICTORIA

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Summary

At 2300 hours on 16 November, the German flag container ship Columbus Victoria anchored in Port Phillip Bay with Point Gellibrand bearing 353° x 1.75 miles. The vessel anchored to the port anchor with 5 shackles on deck in about 12 m of water. The ship's draught was 6.3 m forward and 7.25 m aft. Sea watches were maintained on the bridge and the engine was put on 20 minutes notice. The ship was due to berth at about 0600 on 18 November.

At 1220 on 17 November, the chemical tanker Sampet Hope anchored with Point Gellibrand bearing 346° x 1.35 miles. The anchor position was about 4.5 cables north and east of Columbus Victoria. The tanker had a cargo of non-volatile (kerosene type) solvent in four centre tanks. The weather at this time was fair with a south-south-west to south-west wind at about 8 knots. Sea watches were maintained on the bridge and the engine was left on instant (3-4 minutes) readiness.

From about 1400 on 17 November, the wind backed and increased in strength. At 1800, the wind speed was recorded at the Harbour Control Centre as west of south at 17-25 knots. By 2200, the wind was noted as southerly at 21-31 knots, gusting to 35 knots, with rain. The sea at the anchorage was described as "short and choppy".

At about 2215, the officer of the watch aboard "Columbus Victoria" detected the ship was dragging anchor, the Master was called and the engine room given notice that the engine was required.

At about 2220, the officer of the watch on Sampet Hope realised that Columbus Victoria was dragging anchor and that risk of collision existed. He called the Master and at 2226 the engine was ordered. At about 2230, crew members of "Sampet Hope" were deploying fenders as the container ship approached. The engine and bow thrust were ready for use.

At a time put at between 2232 and 2233, the two vessels collided. The initial impact was taken forward of the tanker's collision bulkhead, on the bulbous bow and the flare of the starboard bow. At about this time "Columbus Victoria" let go the other anchor, but it did not arrest the drift.

A second impact occurred at 2236. By using the bow thrust, engine and rudder, Sampet Hope cleared Columbus Victoria at 2240 and the tanker weighed anchor at 2252 and the master repositioned the ship.

At about 2240, the engine on Columbus Victoria was ready for manoeuvring. At 2250, the vessel started to manoeuvre and weighed anchor at 2305, re-anchoring at 2330 with 7 shackles in the water to the south of its original position.

Sources of Information

The Master, Officers and crew of
Columbus Victoria

The Master, Officers and crew of
Sampet Hope

The Marine Board of Victoria

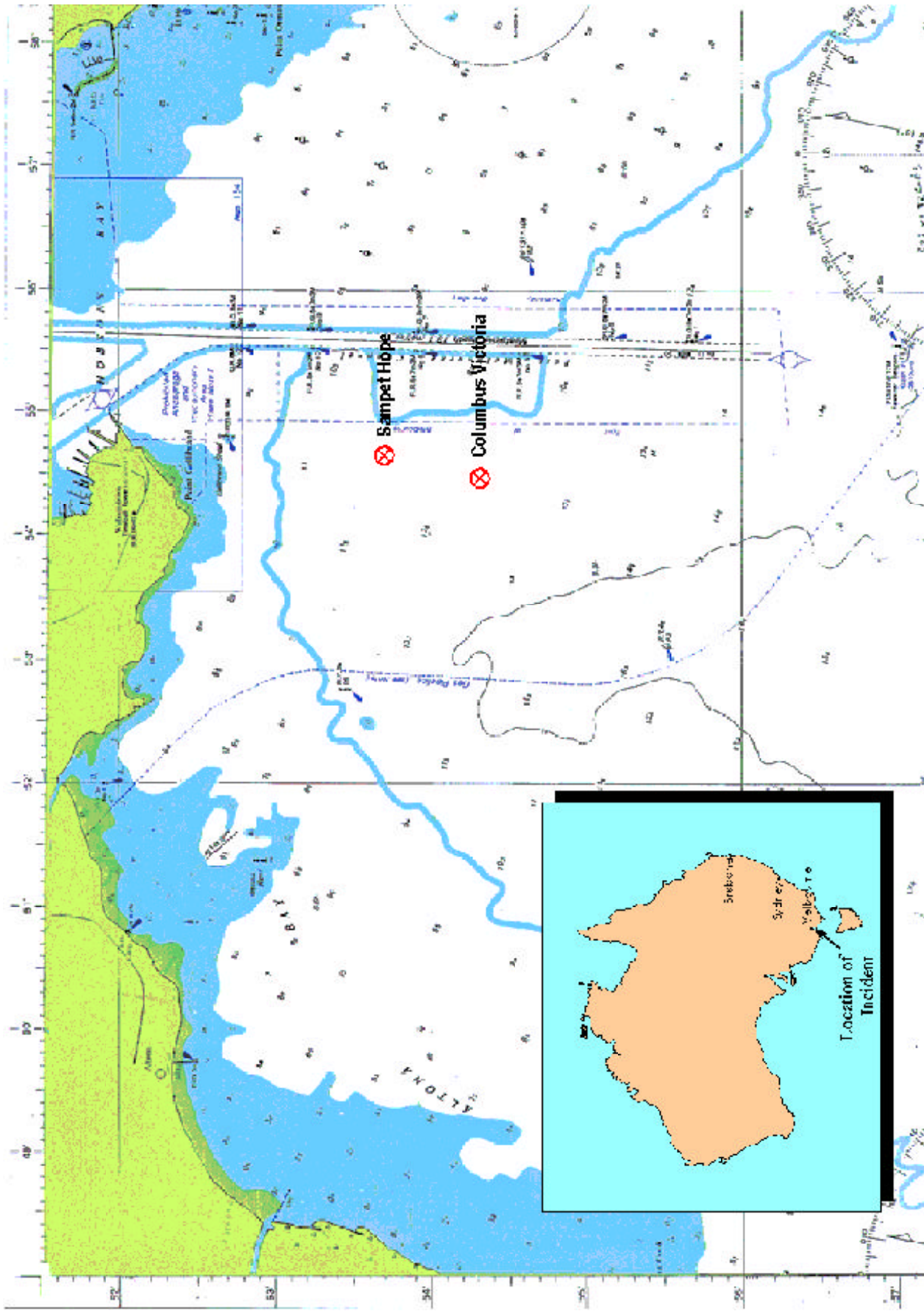
Staff of the Port of Melbourne Control
Tower

Victorian Channel Authority

Port Phillip Pilots

Acknowledgement

Portion of chart Aus 155 reproduced
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Portion of chart Aus 155 (reduced) showing location of vessels before incident

Narrative

Columbus Victoria

The German flag motor container ship Columbus Victoria was launched at Bremerhaven Germany, in 1979 as Columbus Louisiana. In 1991 the vessel was renamed Oregon Star and then in 1994, Columbus Victoria. The vessel is owned and operated by Hamburg-Südamerikanische-Dampfschiffahrts-Gesellschaft, Eggert and Amsinck. The vessel is engaged in trade from the west coast of the United States of America to New Zealand and Australia. The round voyage is of about seven weeks duration.

Columbus Victoria has a length overall of 183.69 m, a beam of 28 m, a designed draught of 9.1 m and a capacity of 1203 twenty foot equivalent units. The bridge, accommodation and engine room are situated aft. It is powered by a single Sulzer two stroke turbo charged diesel engine generating 10,590 kW driving a single shaft and fixed pitch propeller, giving a service speed of 19.4 knots. The vessel also has a bow thrust generating 735 kW.

The bridge is equipped with the normal range of navigation equipment including an automatic radar plotting aid (ARPA) and a global position system receiver (GPS). One of the features of the GPS system was an anchor watch mode which sounded an alarm if the ship altered its position by more than a preset distance.

The ship's port and starboard bow anchors are each 7.99 tonnes in weight each attached to 12 shackles of cable.

The pilot card showed that each shackle on board Columbus Victoria was 25 m, making the total cable available 300 m.

The Master and crew operate under a comprehensive set of operating procedures, including procedures for maintaining a navigation watch and anchor watch. The vessel's owners are in the process of adopting the International Ship Management Code and a nine volume document conforming to the Code's requirements was received in America, replacing the existing operating/safety manual.

Columbus Victoria had a crew of 28 and three supernumeraries. The officers - the master, three mates, four engineers and an electrician - were from Germany while the ratings were mainly from Kiribati. The junior of the three mates, who kept the 8-12 watch, was referred to as the Second/Second Officer: for the purposes of this report this officer will be referred to as the Third Mate. At sea and at anchor, the navigating officers maintained a traditional 4 hours on, 8 hours off watch system. The engineer officers did not keep engine room watches, but worked daywork with one duty engineer on call throughout the 24 hour period. An engine room rating (a motorman) is in the engine room at all times.

The Master had 38 years seagoing experience; 28 years with Columbus lines and a number of those sailing to Australia. He had been master since January 1996. The Third Mate had been at sea since 1988 and in 1991 studied for his officer of the watch certificate. He had been a watchkeeping officer since 1995.

The working language on board was English and those interviewed demonstrated a very good command of the language.

Sampet Hope

The Liberian flag motor chemical tanker Sampet Hope was launched at Imabari, Japan in 1991 as Stellar Hope. In 1995, the vessel was renamed Sampet Hope when it was bought by Sampet Chemical Tankers Inc, who passed the management of the ship to Nassau Bay Marine of Singapore. The vessel is engaged primarily on voyages in the Asian, Australian/New Zealand areas.

The tanker is 111.56 m in length overall, has a beam of 18.8 m and a summer deadweight of 9070 tonnes at a draught of 7.613 m. It has six centre tanks and 12 wing tanks all constructed of stainless steel. The bridge, engine room and accommodation block are situated aft. The ship is powered by an Akasaka diesel engine developing 4900 kW driving a single shaft and a variable pitch propeller, giving a service speed of 13 knots. The propeller pitch is normally controlled from the bridge console. The vessel is also equipped with a bow thruster.

The bridge is equipped with the full range of navigation aids, including two radars and a GPS receiver, all of which were in full working order on 17 November.

The vessel was manned by a crew of 21 Filipino nationals, made up of a Master, three mates, a radio officer, four engineers and 12 ratings. The ship maintained the normal merchant three watch system with officers keeping a four hour navigation watch:

4-8, 8-12, 12-4. The Master had considerable seagoing and command experience. The Third Mate had been a watch keeping officer for five years.

The ship's port and starboard bow anchors are each 3.1 tonnes in weight and each anchor locker holds 8 shackles (220 m) of cable.

The vessel carried certification under the International Ship Management Code and operates under the Stolt-Nielsen Safety and Quality Management System, which all officers read and sign acknowledging their understanding of the procedures. The ship's operating instructions were in English, and the officers and rating interviewed during the investigation demonstrated an excellent command of English.

The Incident

Columbus Victoria arrived at the Port Phillip Heads from Auckland, New Zealand, at 1945 on 16 November 1996 and embarked a pilot. The vessel was to delay its berthing to allow another vessel, which was behind in its schedule, to take the Columbus Victoria's scheduled berth time.

At 2230, Columbus Victoria passed the Fawcner Beacon. The Third Mate was instructed by the Master to anchor with 4 shackles (100 m) in the water. The Third Mate and the Fitter Rating went forward to anchor the vessel. When on the forecastle-head, the Third Mate once again confirmed the order of 4 shackles in the water.

At 2300 on 16 November, the port anchor was dropped and at 2315 the vessel was brought up to 4 shackles in about 12 m of water (5 shackles on the

windlass) with Point Gellibrand bearing 353° x 1.75 miles. The ship's draught on arrival was 6.3 m forward and 7.25 m aft. The wind was recorded as south-east force 5. The engine was placed on 20 minutes notice of readiness. The GPS anchor alarm had been switched on with the alarm set for three cables. There were two other vessels in the anchorage but no ship to the north of Columbus Victoria.

During the night the wind strength dropped and the direction became variable; the sky was overcast and the weather fine. Although yawing, Columbus Victoria maintained its anchor position. During the morning of 17 November the wind backed to the west and varied between 5 and 14 knots.

Shortly after 1200, the small chemical tanker Sampet Hope passed Columbus Victoria and was seen to anchor to the north of the container ship's position. With two other vessels in the anchorage this brought the total number of ships awaiting a berth to four.

During the afternoon of 17 November, the wind speed reached a steady 15 knots from the south-west, before increasing from about 1800 and backing to the south.

During the Mate's watch, 1600 to 2000, the GPS anchor alarm, which was set at 0.3 cables, had sounded, but checks showed that the ship had maintained position. The ship was, however, yawing about the anchor with variations in the ship's head of 60° to 80° and the GPS was showing a movement of ±1 cable.

At 2000 on 17 November the Third Mate took over the watch from the

Mate. The hand-over was routine and a check of the anchor position showed that the vessel had apparently shifted its anchor position. Fawkner beacon was bearing 164° x 3.1 miles, but the vessel did not appear to be dragging. The rating on lookout duty also changed at this time and the Third Mate made a point of pointing out the tanker astern and told the lookout to keep a particular watch on the vessel.

The Master was on the bridge and estimated the wind to be from the south-south-east force 7 (28-33 knots). At the same time the Port of Melbourne Control Tower, 5 miles to the north of the anchorage, recorded the wind as due south, gusting to 27 knots. The Master had monitored the weather forecasts by weather map and the VHF, and the general indication was that the weather would moderate through the night and early morning. The Master stayed on the bridge until after 2030, talking to the Third Mate. During this conversation he expressed a degree of displeasure at the closeness of the tanker to the north and astern of them, which they knew to be Sampet Hope. Before he left the bridge, the Master checked the actual distance from Sampet Hope, which he recalled as 0.33 miles.

Before leaving the bridge the Master completed his night orders, supplementing the ship's standing orders, relating to the keeping of anchor watches. He pointed to the entry in the watch order book requiring the officer of the watch to check the position continuously and to call the Master if the anchor started to drag. He also instructed that if the ship started to drag the Fitter was to be immediately sent to the fore-castle-

head. Although the Master did not elaborate the Third Mate understood him to mean that the starboard anchor was to be let go in such an eventuality.

The officer of the watch was also obliged to check an hour before the expected pilot boarding time, so the vessel and the crew would be prepared for berthing at 0600 on 18 November. The Master went to his cabin and, anticipating an early call to weigh anchor, went to bed some time before 2200.

The Third Mate kept an almost constant watch on the ARPA set, with the variable range marker and electronic bearing line on No. 8 beacon and an ARPA navigation line on Point Gellibrand. The ship's position was checked relative to Fawkner beacon.

At 2100, he marked the ship's position on the chart with Fawkner beacon bearing 166° x 2.7 miles. Columbus Victoria was yawing markedly. On some occasions Sampet Hope could be seen on the container ship's port side and on others on the starboard side; the distance on the radar showed that the tanker was sometimes marginally under 0.3 miles and sometimes marginally over. The GPS position alarm went off on a number of occasions, but the ship had not apparently moved outside the radius of its anchor chain, relative to Fawkner beacon and No. 8 beacon.

At 2200, according to the ship's charted position, Fawkner beacon was bearing 166° x 3.3 miles. Although the bearing of the beacon had altered, the position was within the general arc of positions previously marked on the chart. The wind was strong, gusting

over 30 knots from the south and it was raining. The distance to Sampet Hope remained at about 0.3 miles.

At about 2213 the Third Mate realised that after completing a yaw, the distance between the two ships had started to decrease, rather than the increase that he had expected. His ship was moving. The ship seemed to be moving rapidly and he immediately tried to contact the fitter. At about 2216, he called the Master. He also called the duty engineer and told him he required the engine as the ship was dragging anchor. At about this time the Chief Engineer was also called and he recalled arriving in the engine room at about 2228.

At this time, the Third Mate heard Sampet Hope calling his vessel on VHF channel 16 informing him that Columbus Victoria was drifting. He responded by confirming that the vessel was drifting and recalled saying "yes, I know, we are working on that."

The Master was woken and arrived on the bridge at a time put at about 2220. He was told by the Third Mate that the engine had been ordered and that the Third Mate had tried unsuccessfully to locate the Fitter to order him forward to stand by the anchor.

The Master told the Third Mate to go to the fore-castle-head to stand by the anchor and the Third Mate immediately made his way forward. Midway along the upper deck he paused as Sampet Hope seemed very close. He could see crew from the other ship running to the fore-castle deck. He then hurried to the fore-castle-head and the anchor windlass, reporting to the Master that he was in position.

The collision occurred very shortly after the Third Mate arrived on the forecastle. He looked at his watch when the first contact was made and the time was 2232. This was confirmed by the Mate who had gone to the bridge.

The two vessels collided with Sampet Hope nearly at right angles to Columbus Victoria's port side, in way of the after end of container bay 7.

Immediately after the collision the Fitter arrived on the forecastle-head, having been found by the lookout, who the Master had sent to locate him. The Master ordered the starboard anchor dropped at 2236, however, the starboard anchor did not slow Columbus Victoria's drift. The tanker's stern then slewed to starboard and there was a second contact at 2236. The tanker's stern then slewed further to starboard and Columbus Victoria continued down the tanker's side until clear about three minutes later.

At 2239, the Master called Melbourne Harbour Control on channel 12 VHF, reporting that his vessel was adrift and that Columbus Victoria had "... passed a small tanker ship on my port side." The Master stated that he could not assess any damage at that stage but would report when he had moved to another anchorage position.

The engine was ready at 2241:30 and at about 2243, the two men on the forecastle-head put the starboard windlass into gear and started to recover the starboard anchor. Clear of Sampet Hope, the Master started to use the engine just before 2247 to assist in weighing the anchor and reducing the rate of drift. When the starboard

anchor was hove home at 2250, the Master ordered that the port anchor should be recovered and it was weighed at 2305. The Master then conned Columbus Victoria to a position with No. 8 beacon bearing 026° x 2.0 miles and anchored at 2336, to 7 shackles on the port anchor.

Sampet Hope

Sampet Hope arrived off Port Phillip from Port Botany at 0918 on 17 November 1996, with a cargo of non-volatile kerosene type oil (flash point > 60°C) in four centre tanks. The vessel was drawing a maximum draught of 5.08 m aft. The Port Phillip Pilot embarked at 0930 and Sampet Hope arrived off the Fawkner Beacon at 1205 by way of the West Channel. The ship anchored at 1220 and at 1228 was brought up to the starboard anchor with 5 shackles (137.5 m) in about 12 m of water. Point Gellibrand was bearing 346° x 1.35 miles and No. 8 beacon was bearing 110° x 0.7 miles. The wind was from the north-west force 3 (7-10 knots). The container vessel Columbus Victoria was about 5 cables south and slightly to the west of Sampet Hope.

Sea watches were maintained and the engine telegraph was placed on "finished with engine", however the engine was placed on immediate readiness (3-4 minutes). The vessel was due to dock as soon as the chemical berth became vacant.

During the afternoon the crew was exercised in emergency drills and both lifeboats cleared to the water. The anchor position was checked frequently in accordance with the vessel's safety and quality management system and no dragging was detected.

At the change of each watch the wind and weather conditions were noted. At 1600, the wind had backed to the south-west and increased to force 4 (11-16 knots) and at 2000 the wind was from the south force 4-5 (15-18 knots) and the sea conditions had deteriorated.

At 2000, the Third Mate took over the watch together with a seaman lookout. Two radars were in operation one with "ship's head up" on 1.5 mile range and the other on "north up" on 0.75 mile range. With the wind gusting he kept a constant watch on the ship's position. Sampet Hope maintained its position. The position of the nearest vessel, a container ship, was marked by the variable range marker and the electronic bearing cursor.

At 2200, the Third Mate checked Sampet Hope's anchor position and the relative position of the other ships in the anchorage. The container ship was at about 5 cables, possibly a little less, which he put down to the yawing of both vessels in the wind.

At about 2220, the Third Mate was again checking the position of the container ship and he realised that the distance between the two ships had closed and the other was dragging anchor. He monitored the drift of the container ship for a few minutes and realised that it was drifting directly towards Sampet Hope. He used the VHF radio on what he believed to be channel 12, to call the container ship. When the container ship responded, the person using the VHF stated that the ship was Columbus Victoria and, when the Sampet Hope's Third Mate inquired whether the ship was

manoeuvring or drifting, the person on Columbus Victoria gave a somewhat ambiguous reply.

The Third Mate called the Master to the bridge and notified the engineer on duty that the engine was required immediately. The Master arrived on the bridge at a time put at about 2226 and immediately ordered the crew to muster on deck and deploy fenders.

At 2230, the engine room confirmed the bow thruster was running and the engine was ready for manoeuvring. At this time Columbus Victoria was estimated to be 50 m away and closing rapidly. A further VHF call was made on channel 16 by the Third Mate to Columbus Victoria, but with no response.

The first contact between the two vessels was timed by those on Sampet Hope at 2233, when Columbus Victoria came into contact with the tanker's bulbous bow on the container ship's water line at frame 105 and the flare of the tanker's bow set in the container ship's bulwark. Sampet Hope's Master used the bow thruster to try and keep his ship parallel and free of Columbus Victoria as the port side of the container ship passed down the starboard side of the chemical tanker. At 2235, the engine was put on slow ahead, then half ahead, and using the rudder and bow thrust he tried to clear Columbus Victoria. There was a second and less pronounced contact at 2236. At about 2239, Sampet Hope's starboard bridge wing and then starboard lifeboat came into contact with the container ship's bow, causing damage to both and the loss of the starboard wing life buoy. The two

vessel's cleared each other at about 2240.

At 2249, Sampet Hope contacted Melbourne Harbour Control on channel 12 VHF, confirming the vessel was underway and changing its anchor position. The Master confirmed that the vessel had sustained some damage, but the cargo tanks had not been damaged and there was no spillage of oil.

Sampet Hope moved to a position with Point Gellibrand 345° x 1.83 miles where it anchored at 2255 to six shackles on the starboard anchor in about 12 m of water.

Independent Observations

At the time of the incident the Japanese registered vessel Nichigoh Maru was manoeuvring to anchor about 1 mile to the south of Sampet Hope. The crew of the pilot boat and the Pilot heard the VHF calls made by Sampet Hope. The initial message was estimated by the Pilot to have been made at about 2230, with contact being made shortly after. The Pilot noted the wind at the time was south by east at 30 knots, gusting in excess of 35 knots, with a short choppy sea of 2.5 m to 3.0 m.

While waiting for the Pilot to disembark from Nichigoh Maru, the pilot boat crew diverted to assess the situation and at 2235 reported that the two ships were "hard up alongside each other".

At 2244, Nichigoh Maru anchored and at 2250 the Pilot disembarked to the pilot boat. The Pilot then offered to assist Sampet Hope, an offer that was declined. Thereafter the pilot boat inspected both vessels, the Pilot reporting to Melbourne Harbour Control and to the vessels on his initial assessment of the damage.

As Columbus Victoria was manoeuvring to a new anchorage, the pilot boat guided the ship to a suitable anchorage location and, after recommending that the ship ensure that it was clear of any pipeline, the Pilot confirmed that the anchorage was suitable.

Post Incident

Sampet Hope berthed on the evening of 18 November and damage to the ship was inspected.

The bulbous bow was found to be split, with further damage to the flare of the bow, the ship side rails, the bridge wing and lifeboat. A condition of class was imposed on the vessel requiring repairs to be completed in March 1997. Measures were adopted for deficiencies in life saving appliances resulting from the collision and the vessel was permitted to sail following discharge of its cargo.

Columbus Victoria berthed early on 19 November and inspection of the ship found damage to the hull, particularly in way of frame 105. A condition of class was imposed, requiring repairs to be completed early in 1997. The vessel was permitted to sail on completion of cargo operations.

Comment and Analysis

Port Control Vessel Traffic Management

Duty officers at the Port Control Centre coordinate shipping movements into the Port of Melbourne, the port emergency services and monitor vessels in Port Phillip Bay by radar. The wind speed and direction and weather at the tower is monitored and recorded hourly. Also all VHF traffic is monitored and all transmissions are recorded and timed.

The position of ship's anchoring off the entrance channel are plotted from the radar and logged. However, the Port Control Centre is not suitable for continuous monitoring of a ship's position or to indicate whether a ship is dragging anchor in a realistic time frame. The responsibility for maintaining position, detecting any movement in the position of the anchor and taking any appropriate action rests with the vessels involved.

The Anchorage

Vessels waiting to enter Port Melbourne anchor to the west of the port limits and clear to the east of the gas pipeline running from Altona to Mordialloc. This anchorage, south of Gellibrand Point, offers fair to good holding ground of sand and mud. With a reasonable amount of cable deployed it is very unusual for vessels to report any problem with anchors failing to hold, even in very strong winds.

Typically, with limited tidal movement, vessels are windrode.

Tankers carrying low flash-point cargoes and vessels carrying explosives anchor in the explosives anchorage about 5 miles west of Fawkner Beacon. Sampet Hope, a vessel making regular voyages to Melbourne, normally anchored in the explosives anchorage, however, on 17 November the cargo was non-volatile and the vessel was anchored south of Gellibrand Point.

At Anchor 16/17 November

The bridge of Sampet Hope, with 5 shackles in the water and with its radar antenna about 90 m from the bow, would have been about 220 m from the anchor, measured horizontally. Based on the initial anchor positions entered in the respective log books of the two ships, Sampet Hope's position was 0.45 miles from Columbus Victoria. The officers of each ship stated that during the afternoon the distance between the two ships was about 0.5 miles.

The radar antenna on Columbus Victoria is about 150 m from the bow, with 5 shackles (125 m) of cable on the windlass it would have been about 270 m from the actual anchor, measured horizontally.

When Columbus Victoria anchored the wind strength was moderate and it then moderated further. The vessel was well clear of the other vessels in the anchorage. With three vessels at anchor to the west of the port limits, Sampet Hope was anchored 0.5 miles from the container vessel. In reasonable holding ground such separation is considered normal.

The container ship's initial anchor position at 2330 on 16 November, was entered as 353° x 1.75 miles from Point Gellibrand, a position close to that fixed by GPS at 1300. However, the routine positions checks were mostly taken from Fawkner Beacon which gave a consistent bearing of between 164° and 166° and distance of 2.7 miles to 2.8 miles until about 2000 on 17 November. At 2000, Fawkner Beacon was logged at 3.1 miles, however the 2100 position indicated that the ship was again 2.7 miles from the beacon.

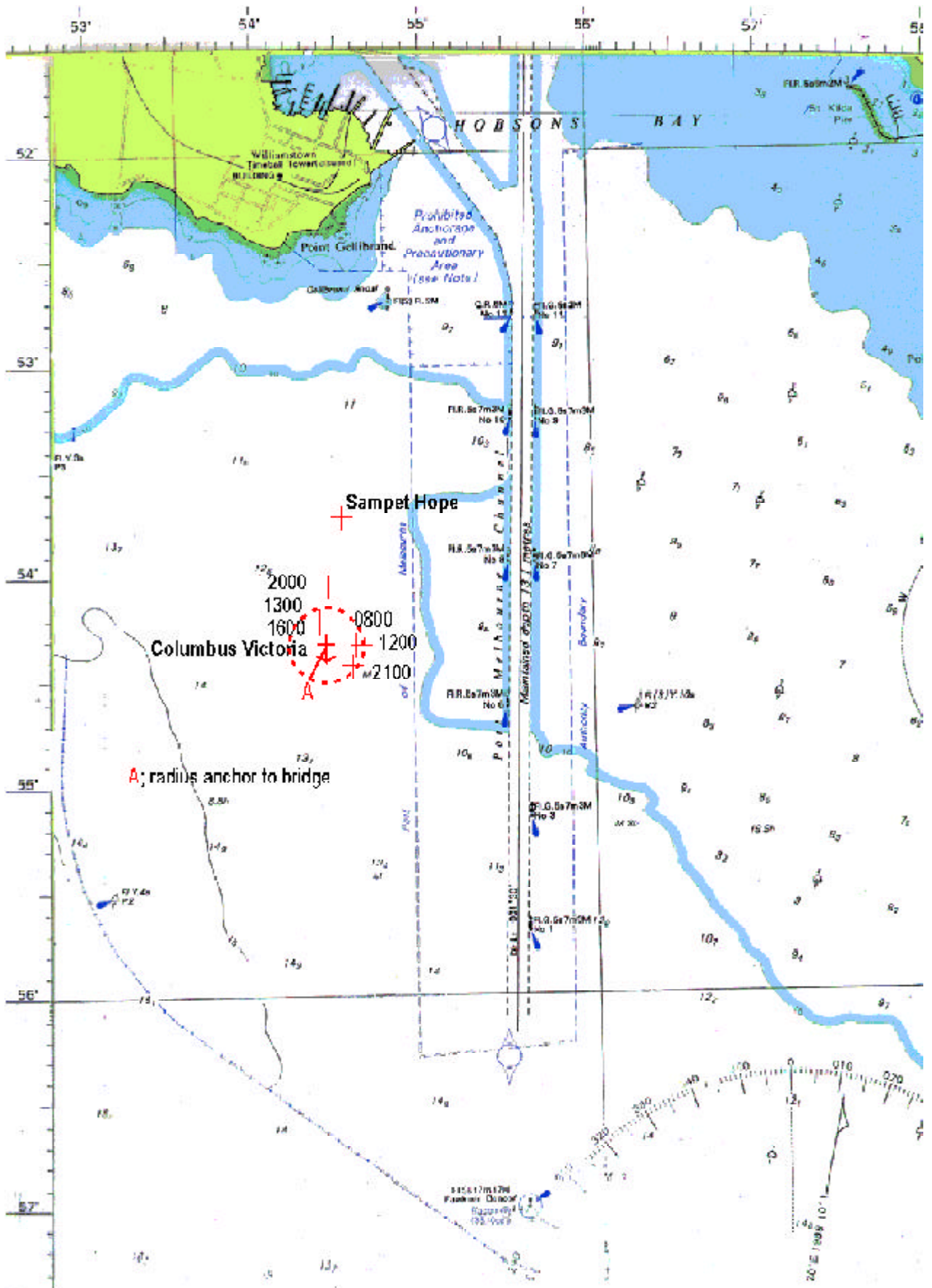
This would seem to suggest that either the 2000 or the 2100 positions were inaccurate or the anchor had moved first in one direction and then in another. However, there seems to have been no double check on either position or comparison with the original position taken from Point Gellibrand. The 2000 position would have put Columbus Victoria less than 1.6 miles from Point Gellibrand, rather than the original 1.75 miles and about 0.3 miles from Sampet Hope. The evidence is that during the evening the distance between the two vessels was between 0.31 miles and marginally under 0.3 miles from Columbus Victoria's bridge. Therefore, for some reason, the distance between the vessels had reduced at some time. It is possible that Columbus Victoria dragged anchor slowly sometime before 2000 and that the 2100 position was in error.

Columbus Victoria's anchor position based on bearing and distance from Fawkner Beacon, allowing a distance of 270 m from the bridge, would put the anchor 342° x 2.82 miles from Fawkner Beacon. The spread of

positions recorded on the container ship's chart would suggest that the ship was probably yawing more than the 80° estimated by those on Columbus Victoria.

Columbus Victoria, with a draft of about 7 m and an exposed freeboard of 9 m together with a hatch coaming and deck containers to a height of about another 9 m, the windage of the container ship was considerable, resulting in a propensity to yaw rapidly over a wide arc. Given the scope of cable and a reported yaw through 60° to 80° the ship could describe an arc of 0.2 miles (370 m) or more in any one swing.

With the increase in wind from the south the ship was not only to windward of Sampet Hope, but also within two miles of a lee shore. There had been a forecast of stronger winds broadcast at 0000 on 17 November and 1630 on 17 November. The Master was faced with something of a dilemma. The ship was anchored in Port Phillip Bay, an enclosed bay and a compulsory pilotage area. It would therefore be a significant decision to weigh anchor and ride out the weather under way without a pilot. If he had been sufficiently worried about the Sampet Hope astern of him, he could have tried to drop his starboard anchor at the extreme of a yaw to the west and lie to two anchors which would have reduced the yawing of the ship and the risk of tripping the single anchor. Alternatively the starboard anchor could have been dropped underfoot to bite if the first anchor started to drag. This may be considered something of a "text book" solution and inappropriate for a ship of that size which would require the maintenance of a watch on



Portion of chart Aus 155 showing location of vessels

the fore-castle. Additionally, masters are often reluctant to drop a second anchor if there is a risk of the two cables becoming fouled.

The most practical safeguards would have been to move anchorage position or have the engine running and ready for immediate use rather than on 20 minutes notice.

However, the engine was not in such a state of readiness. The engine telegraph recorder shows that the engine was ready for manoeuvring at 2250:20. The Master of Columbus Victoria stated, and it is accepted, that the recorder was in fact 8 minutes 47 seconds fast and the engine was actually ready for manoeuvre at 2241:33.

The immediate option was to drop the starboard anchor. The Fitter, whose job it was to drop the anchor, could not be found. If the times given by those on Columbus Victoria are accepted, the Fitter remained elusive for some 15 minutes or so.

Given the proximity of Columbus Victoria and the apparent speed of its drift, Sampet Hope's Master had little option but ready the tanker to manoeuvre and hope the container ship would either miss his ship or get under way to prevent a collision. The only other option would have been, in conjunction with the engine, to slip the tanker's anchor cable by allowing the cable to run out, releasing the final link.

Those on Sampet Hope were not sure how the anchor cable could be slipped. In submission the Master stated that the option of slipping the cable in an emergency was not feasible. The chain

locker man hole was secured by 20 bolts/nuts and the space was considered "enclosed" and subject to strict entry rules.

An inspection of the chain lockers by the investigators showed that the "bitter end" was not accessible from outside the chain locker and there was no obvious indication inside the locker as to how, or if, it was secured in any way. The ability to slip an anchor in an emergency is a basic safety precept, which may have been overlooked in design or was not understood by the crew.

Anchor Holding Power

The collision between Columbus Victoria and Sampet Hope is the third such collision involving one ship dragging anchor on to another while waiting off an Australian port. On 23 November 1995 New Noble dragged anchor colliding with Goonzaran off Newcastle, New South Wales (Report No. 86) and on 5 March 1996, Bogasari Dua dragged anchor colliding with Midas off Geraldton, Western Australia (Report No. 91). The reports into these incidents highlighted the International Association of Classification Societies design standard for anchors. The anchoring equipment is intended for temporary mooring within a harbour or sheltered area when the vessel is awaiting a berth or the tide.

A1.1.2 The equipment is therefore not designed to hold a ship off a fully exposed coast in rough weather or to stop a ship which is moving or drifting. In this condition loads on the anchoring equipment increase to

such a degree that its components may be damaged or lost owing to the high energy forces generated, particularly in larger ships.

Anchoring equipment is designed to hold a ship in good holding ground. The size of the equipment is predicated on the ship's displacement at summer load water line, the ship's breadth and the area of hull above the summer load water line exposed to wind.

A1.1.4 The Equipment Number formula for anchoring equipment here under is based on assumed current speed of 2.5 m/sec, wind speed of 25 m/sec¹ and a scope of cable between 6 and 10, the scope being the ratio between the length of chain paid out and water depth.

Also anchors provide maximum holding power when the cable is pulling horizontal to the anchor shank. The efficiency of the anchor is reduced significantly as the angle between the horizontal and the cable at the anchor shank increases. A rule of thumb is that a pull 5° above the axis of the anchor reduces the holding power by 25 per cent and a pull of 15° reduces the holding power by 50 per cent².

Columbus Victoria used a scope of cable of about 10 in fair to good ground. However, the ship did not lie steadily to the anchor but was windrode and yawing over a significant range as the wind increased. It is very probable that the cable was bar tight and lifting at the anchor shank as the vessel yawed. In 12 m of water the anchor cable would have made an

¹ 4.86 knots current, 49 knots wind speed

² Danton, G., The Theory and Practice of Seamanship, 10th Edition Revised. (1987), Routledge, London

angle of about 10° with the horizontal reducing the anchor's holding power by nearly 40 per cent.

Time of the Incident

At 2232:45, Sampet Hope called Melbourne Harbour Control on channel 12 VHF:

Sampet Hope :

Melbourne Harbour Control, this is Sampet Melbourne Harbour Control, Sampet Hope Melbourne Harbour Control, Sampet Hope

Harbour Control:

Melbourne Harbour Control, Sampet Hope, this is Melbourne Harbour Control, Good evening, sir, go ahead

Sampet Hope :

Columbus Victoria is drifted towards the vessel and we are going to have an imminent collision because they are drifted on my vessel - over

Harbour Control:

Sampet Hope, your signal was clear, did you say you are drifting? - over

Sampet Hope :

Columbus Victoria Container Ship had a collision with me - over

Harbour Control:

Roger, has he made contact with you, or is he drifting towards you? - over

Sampet Hope :

He has made contact with my vessel - over

From Harbour Control:

Understood, thank you.

It was during this VHF radio call, which took 65 seconds to complete, that contact was made between the two ships, a time recorded as 2233 by Sampet Hope and 2232 by Columbus Victoria. Both vessels were within one minute of each other in time and within one minute of East Australian Standard Time as recorded on the VHF radio

monitoring system in the Melbourne Port Control Tower.

However, this timing and the recorded times of the VHF messages raises the issue of when the Third Mate on Columbus Victoria actually realised that the ship was dragging anchor and when the Master arrived on the bridge.

The Third Mate on Columbus Victoria stated that he called Sampet Hope before the Master arrived on the bridge at about 2220. However, the monitoring equipment at the Harbour Control tower, which monitors all VHF channels clearly records the first contact between the two ships at 2227:43. This was on VHF Channel 16 and was initiated by the Third Mate on Sampet Hope calling the unidentified vessel on the tanker's starboard bow. The reply was that of the Third Mate on Columbus Victoria, whose previous ship had been the Columbus Queensland.

Sampet Hope:

Vessel on my starboard bow, vessel on my starboard bow this is vessel on your port side - how do you read?

Columbus Victoria:

Yes I read you, here is Columbus Queens -er-Victoria

Sampet Hope:

Are you doing some manoeuvre or you are - are you drifting? over

Columbus Victoria:

Yes, we are having a look at that and er, we'll tell you later, OK

Sampet Hope:

If you er can keep clear of me, over

Columbus Victoria:

Yep

The evidence is that this radio call occurred before either Master reached the bridge of their respective ship. The

reply by the Third Officer of Columbus Victoria is also rather ambiguous and seems to lack any urgency or positive plan. At 2230:15, Sampet Hope again called Columbus Victoria on Channel 16, but there was no response.

No contemporaneous records of events were noted on either vessel until the time of the collision. The first objective time recorded on Columbus Victoria was the time of engine readiness at 2241:33. The times were essentially estimated based on recall of events.

It seems probable that the times of events after 2000 recalled by those on both ships occurred later than estimated by the individuals involved. If the initial call at 2227:43, which took just under 45 seconds to complete, was made before the Master of Columbus Victoria reached the bridge, he would not have arrived until 2228:30. Similarly, the Master of Sampet Hope arrived after the initial call by his Third Mate and it seems probable that he too arrived after 2226 and probably after 2228:30.

It would seem that Columbus Victoria's Third Mate did not realise his ship was dragging until sometime after the time he estimated and the sequence of events between then and the collision all occurred later than the estimated times recalled by those on Columbus Victoria.

Alcohol and Drugs

The managing companies of both ships involved have clear policies relating to alcohol and illegal drugs. There is no reason to suspect that either alcohol or drugs were a factor in this incident.

Conclusions

These conclusions identify the different factors contributing to the incident and should not be read as apportioning liability or blame to any particular individual or organisation. The following factors are considered to have contributed to the collision between Columbus Victoria and Sampet Hope.

1. The Master and Officers on Columbus Victoria took insufficient account of the increase in wind strength and the likelihood that pronounced yawing could trip the anchor out of its holding ground.
2. The time required to prepare the Columbus Victoria's engine for manoeuvring was excessive in the circumstances and the engine

should have been ready for immediate use.

3. The 2000 anchor position did not appear to cause concern to the watchkeepers on Columbus Victoria and any ambiguity between the 2000 position and other positions plotted on the chart was not resolved.
4. The lack of decision to move the vessel at 2000 when the Master of Columbus Victoria voiced his annoyance at Sampet Hope's position, when the distance between the two ships had apparently reduced from 0.5 miles to 0.3 miles.

The Inspector further considers:

5. The Master, officer of the watch and crew of Sampet Hope reacted promptly to the emergency and did all that was possible to avert the collision.
6. The anchors on Sampet Hope are apparently not arranged so that they can be slipped in an emergency.

Submissions

The provisions of sub-regulation 16 (3) of the Navigation (Marine Casualty) Regulations require if a report, or part of a report, relates to a person's affairs to a material extent, the Inspector must, if it is reasonable to do so, give that person a copy of the report or relevant part of the report. Sub-regulation 16(4) provides that such a person may submit written comments or information relating to the report.

The final draft of the report, or parts thereof, was sent to the Master, Third Mate and Chief Engineer of Columbus

Victoria and the Master of Sampet Hope.

Submissions were received from the owners and Third Mate of the Columbus Victoria and the text has been altered accordingly.

A submission was also received from the Master of Sampet Hope.

He stated that access to the chain locker was by way of the manhole secured by 20 bolts/nuts and is considered an enclosed space requiring company entry procedures to be followed. Based on this, slipping the chain is ruled out as the appropriate response in such an emergency.

Details of Columbus Victoria

IMO Number	7800150
Flag	Germany
Classification Society	Germanischer Lloyd
Type	Container vessel
Builder	Seebeck- Werft, Bremerhaven
Year	1979
Owner	Hamburg-Südamerikanische- Dampfschiffahrts-Gesellschaft, Eggert and Amsinck
Gross tonnage	24,081
Net tonnage	10,081
Deadweight	23,165 tonnes
Summer draught	10.021 m
Length overall	183.69 m
Moulded breadth	28.0 m
Engine	Sulzer Typ 6 RND 76-M
Engine power	10,590 kW
Crew	31

Details of Sampet Hope

Name	Sampet Hope (ex Stellar Hope)
IMO Number	9036301
Flag	Liberia
Classification Society	Nippon Kaiji Kyokai
Type	Motor Tanker - Chemical
Builder	Asakawa Shipbuilding Co Ltd, Imabari
Year	1991
Owner	Sampet Chemical Tankers
Operators	Nassau Bay Narine Inc, Singapore.
Gross tonnage	4987
Net tonnage	2747
Deadweight	9070 tonnes
Summer draught	7.613 m
Length overall	111.56 m
Moulded breadth	18.8 m
Engine	Akasaka 7UEC37LA
Engine power	3605 kW at 210 rpm
Crew	21