

CITS

Office of the Chief Investigator Transport Safety

Impact with wharf by MV Lady Cutler

Docklands, Victoria on 14 January 2023



CITS Transport Safety Investigation Report

Marine Occurrence Investigation

MO-01-2023

Final Report – 16 November 2023

Cover photo: Chief Investigator, Transport Safety

The Chief Investigator, Transport Safety is a statutory position under Part 7 of the *Transport Integration Act 2010*. The object of the position is to seek to improve transport safety by providing for the independent no-blame investigation of transport safety matters consistent with the vision statement and the transport system objectives. The primary focus of an investigation is to determine what factors caused the incident, rather than apportion blame for the incident, and to identify issues that may require review, monitoring or further consideration.

This investigation was conducted under the *Transport (Compliance & Miscellaneous) Act 1983* by the Chief Investigator, Transport Safety.

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Executive summary

What happened

At about 1515 on 14 January 2023, the Lady Cutler departed Yanonung Quay, Docklands, on a chartered passenger cruise of the Yarra River and Port Phillip. The vessel carried 197 passengers and 8 crew members. At about 1740, while being manoeuvred to its berth at the conclusion of the cruise, the vessel's forward motion was not arrested and its bow came into heavy contact with the Yanonung Quay wharf located at the end of its berth.

The impact resulted in about 19 passengers sustaining minor injuries. Five passengers were transported to hospital and later released. Lady Cutler's bow and the wharf were damaged in the impact.

What was found

It was found that astern propulsion on the Lady Cutler was engaged too late to arrest its forward movement during berthing manoeuvres. This was almost certainly due to propulsion control not being correctly transferred to the port side control console that was being used by the master to berth the vessel. As a result, the master's initial attempts to engage astern propulsion from the port side position were ineffective. Astern propulsion was only achieved after the master returned to the central console and used that active propulsion controller to engage astern propulsion.

As the propulsion controller on the central console had remained active and in the ahead position during the approach to the berth, the vessel's speed was probably between 4 and 5 knots compared to a typical approach speed of 2 to 3 knots. The higher approach speed meant that there was less time for the master to make corrections for the initial error in transferring propulsion control. By the time astern propulsion became fully engaged there was insufficient distance between the wharf and the Lady Cutler to arrest its forward movement.

The master of the Lady Cutler was relatively new to this vessel, and this was only their second voyage in command. Although the master had been provided with familiarisation training, it was concluded that they were probably not fully practiced in the propulsion control change-over process of the Lady Cutler.

Following the incident, the master of the Lady Cutler tested positive for the presence of an illicit substance that was not permitted when operating a domestic commercial vessel. The substance was of a type and quantity sufficient to potentially affect the performance of the master.

It was also found that the vessel's safety management system (SMS) was incomplete, including gaps in training requirements and competency assessment for new masters, and monitoring compliance with drug and alcohol policies. There were opportunities for enhanced regulatory oversight of SMS of domestic commercial vessels designated by AMSA as high-risk.

What has been done as a result

Melbourne Showboat, the operator of the Lady Cutler, has updated its safety management system in a number of areas including introducing structured training and competency assessment for masters prior to them being given command. The operator has also strengthened processes to better monitor compliance with its drug and alcohol policy.

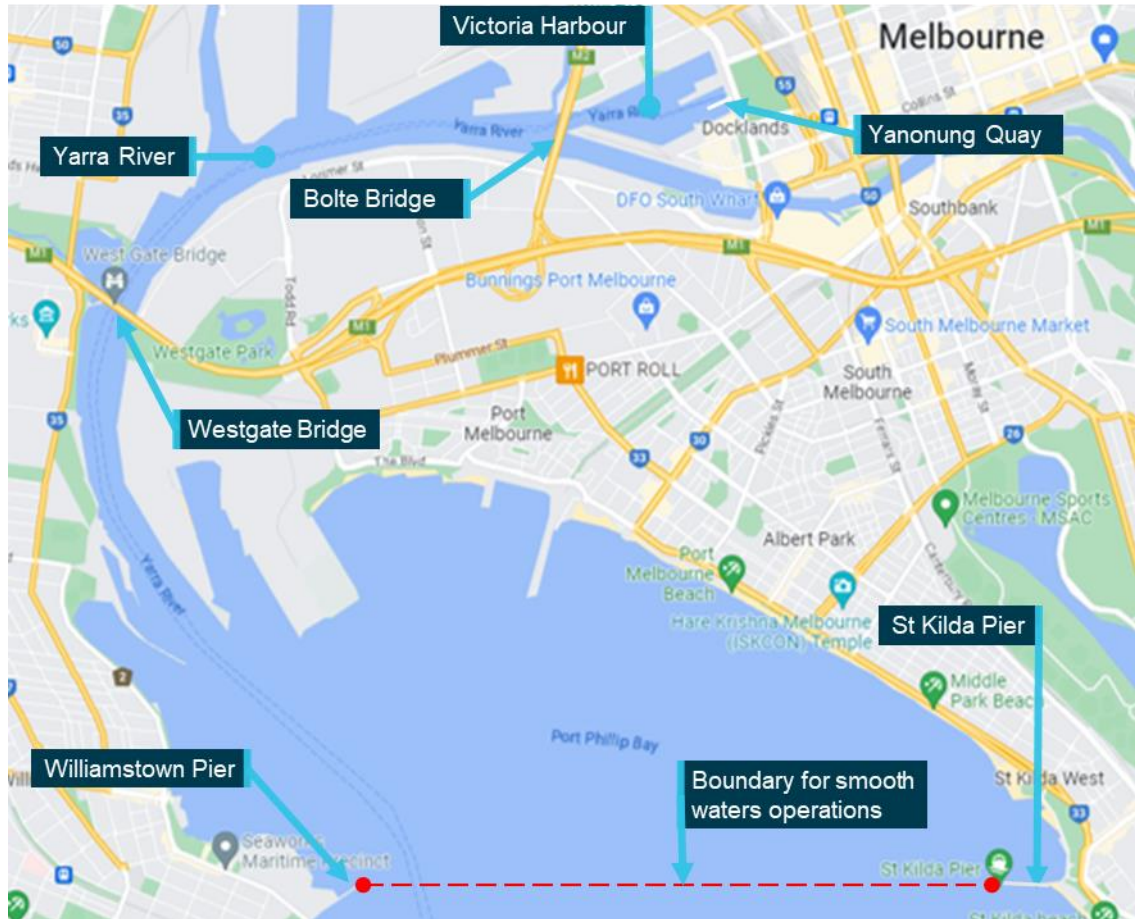
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The occurrence

Melbourne Showboat offered cruises and events aboard the Lady Cutler operating from Yanonung Quay in Victoria Harbour, Docklands. The harbour was located on the western edge of the Melbourne CBD and provided access to the Yarra River and Port Phillip (Figure 1).

Figure 1: Yanonung Quay and waterway access to the Yarra River and Port Phillip



Source: Google Maps © 2023 with annotations by the Office of the Chief Investigator Transport Safety.

The Lady Cutler was booked for an afternoon cruise on 14 January 2023. The master for the cruise reported conducting pre-departure engine and steering checks and concluded that all systems were operating satisfactorily. The cruise departed at about 1515 local time with 197 passengers on board and was crewed by the master, a chief engineer, a second engineer, and five general purpose hands (GPH). The GPH also acted as hospitality staff.

Following its departure from Victoria Harbour, the Lady Cutler travelled along the Yarra River towards Williamstown and entered Port Phillip. The vessel cruised the northern part of the bay including travelling to the St Kilda marina. The Lady Cutler then returned along the Yarra River and into Victoria Harbour. The vessel was to be berthed at its regular berthing position, with its port side to the jetty that extended perpendicular to the Yanonung Quay wharf at the eastern end of Victoria Harbour. The wind was from the NW.

The Lady Cutler had three conning positions within its enclosed wheelhouse: a central console and operating consoles on the port and starboard sides. Propulsion control was only available from one conning position at a time and engine control needed to be transferred to the position being used. Steering, on the other hand, could be controlled from all three positions at any time and there was no need to transfer this control.

The CCTV footage from a stern-facing camera showed a steady wash from the stern propeller as the vessel approached Yanonung Quay. This indicated that the vessel was in ahead propulsion and was probably travelling at a speed of between 4 and 5 knots.

CCTV footage of the central part of the wheelhouse was available from 17:40:21. At that point in time, the master was conning from the port side console and was not in view of the camera. The master's position on the port side was consistent with their intention to berth the Lady Cutler port side to the jetty. The master reported that they had earlier moved from the central conning position to the port side controls, believing that they had transferred propulsion control to the port side. They reported placing the port side propulsion controller to the neutral setting during the approach to the jetty, however, propulsion remained in ahead as evidenced by the stern propeller wash.

The master reported that they then moved the port side engine controller to dead slow astern when the wheelhouse was in line with the end of the jetty. Using available video recordings, this was estimated to have been at about 17:40:45. They recalled not getting a response and moving the controller further astern. The propeller wash observed from the aft-facing CCTV indicated that the propulsion remained in ahead during this period.

At about 17:40:51, the master moved to the central conning position, and returned to the port side a few moments later. The master stated that while at the central console they moved the propulsion controller to astern. However, the forward momentum of the Lady Cutler could not be arrested in the distance available and its bow heavily impacted the Yanonung Quay wharf at 17:41:02. With astern propulsion now engaged, the vessel backed away from the wharf.

CCTV footage showed passengers falling at the time of impact. About 19 passengers sustained minor injuries. Five passengers were transported to hospital and later released. The bow of Lady Cutler and the wharf were damaged (Figures 2 and 3).

Figure 2: Impact damage to Lady Cutler's bow



Source: Office of the Chief Investigator Transport Safety.

Figure 3: Impact damage to Yanonung Quay wharf



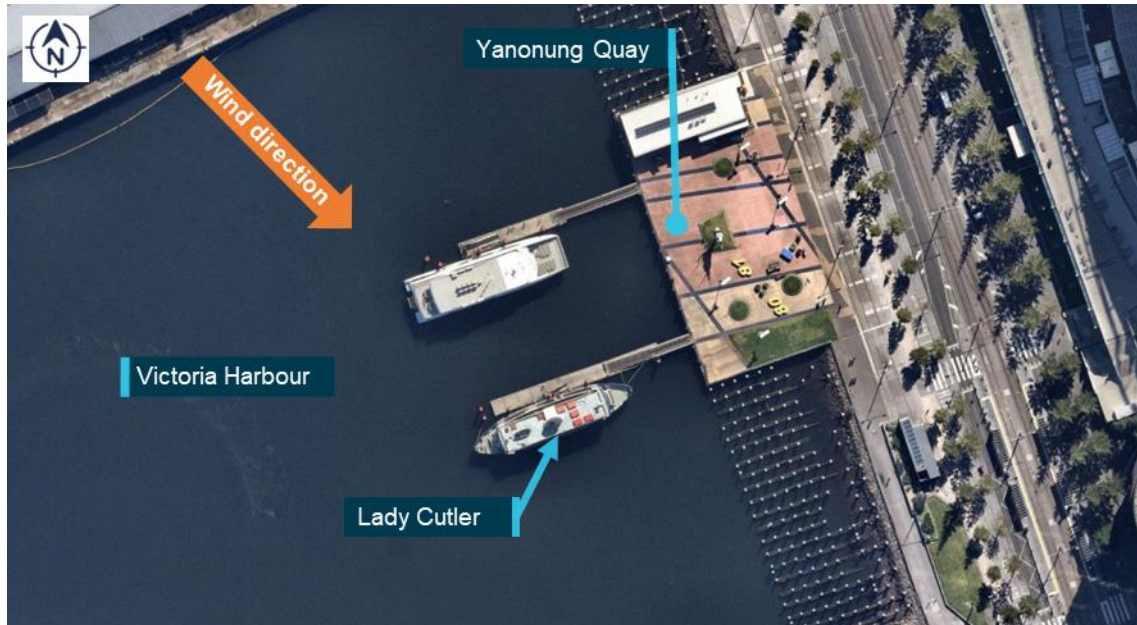
Source: Office of the Chief Investigator Transport Safety.

Context

Infrastructure and environmental conditions

The normal berthing position of the Lady Cutler was port side to its designated floating jetty that projected perpendicular to the Yanonung Quay wharf within Victoria Harbour. The jetty was about 48 m in length. In its normal berthed position, the bow of the Lady Cutler would be about 16 m from the wharf ahead and its stern about 6 m past the end of the jetty (Figure 4).

Figure 4: Lady Cutler berthed at Yanonung Quay



Source: NearMap © with annotations by the Office of the Chief Investigator Transport Safety.

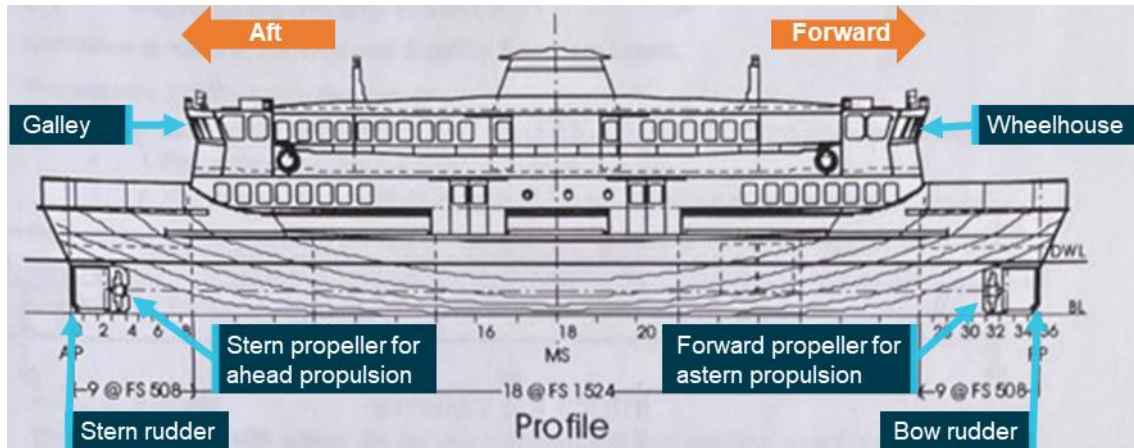
At the time of the incident the waters were smooth due to the sheltered location. Winds in the area were north-west at about 15 knots (28 km/h) although conditions at the jetty were likely to have been affected by surrounding structures. The visibility was clear and the weather was dry and hot with an afternoon temperature of around 36 °C.

MV Lady Cutler

Background

The MV Lady Cutler was operated by Melbourne Showboat. It was built in 1968 as a “lady class” passenger ferry by State Dockyard Newcastle, New South Wales. The vessel as-built was configured as a double-ended ferry with a navigational wheelhouse, propeller and steering arrangements at each end. The vessel entered service in October 1968, operating in Sydney Harbour for the Sydney Harbour Transport Board.

The vessel was decommissioned in 1991 and subsequently brought to Melbourne in 1998. In 2007, the vessel underwent extensive modifications which included converting one of the wheelhouses into a galley for onboard catering. In January 2008, it commenced operating as a passenger cruise vessel on Port Phillip. The vessel was controlled from the wheelhouse at one end that was designated the forward end (Figure 5).

Figure 5: Profile drawing of Lady Cutler

Source: Melbourne Showboat with annotations by the Office of the Chief Investigator Transport Safety.

Certification

Lady Cutler had a measured length of 38 m, breadth of 9.35 m and a draft of 2.1 m and was registered as a Domestic Commercial Vessel (DCV) with the Australian Maritime Safety Authority (AMSA). The Lady Cutler was certified to operate in Class E waters¹ carrying a maximum of 360 passengers with seven crew and could operate in Class D waters² carrying a maximum 300 passengers with seven crew. The most recent Certificate of Survey (CoS) for the vessel was issued in February 2020, valid until July 2024. A Certificate of Operation (CoO) was issued in May 2019 and valid until May 2024.

The CoS, certifying that the vessel met the required standards, was subject to a five-yearly survey cycle with surveys required in years 1, 2, 3 and 5. The Lady Cutler was most recently surveyed on 28 June 2022 (year three in the five-yearly cycle) and there were four minor findings that did not impact on its operation.

The CoO set out the conditions under which the vessel could operate. The CoO required that the vessel have a documented safety management system (SMS) that addressed operational requirements. The vessel was subject to inspections by AMSA at random intervals to verify that it was operating within the scope of its SMS. The Lady Cutler was most recently inspected by AMSA in December 2021 and there was one finding that the vessel's emergency plan did not contain vessel specific procedures for responding to emergencies.

Propulsion and steering

The Lady Cutler had an inline 8-cylinder turbocharged diesel main engine manufactured by MWM GmbH (now known as Caterpillar Energy Solutions GmbH) that delivered 385 kW of power. The main engine idled at 105 RPM. Propulsion was provided through forward and aft four-bladed fixed pitch propellers. The propeller shafts were coupled to the main engine by pneumatically activated clutches.

The vessel did not have a manoeuvring card that indicated speeds at different engine revolutions. Masters of the vessel stated that they estimated that the vessel had a speed of about 5 knots at 120 RPM when the controllers were at F (Forward) or R (Reverse or astern) positions³ and a

¹ The waters upstream of an imaginary line joining Breakwater Pier Light (Williamstown Pier) and St Kilda Pier Light.

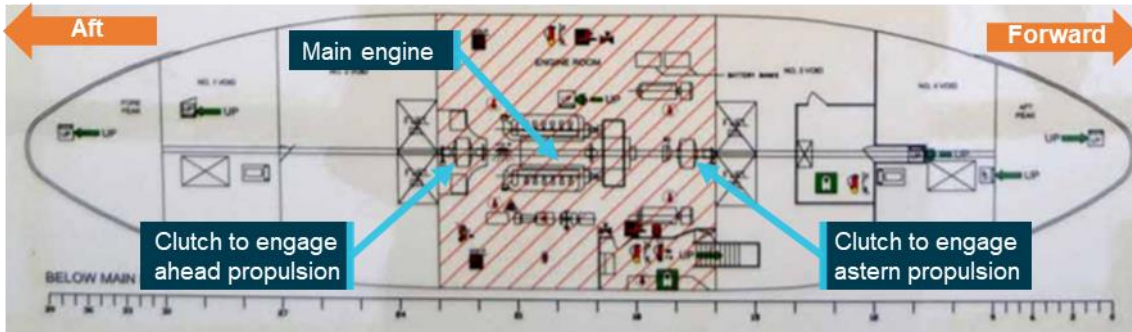
² All other waters in Port Phillip (inside the Heads), not otherwise designated smooth waters.

³ Vessel crew considered the RPM at the 'F' or 'R' positions as the 'Dead Slow' speed.

maximum speed of about 9 knots at about 240 RPM. The normal cruising speed was between 6 and 7 knots at 150 RPM.

Ahead or astern propulsion was achieved by the movement of an engine control lever. For forward propulsion, the aft clutch was engaged to drive the aft propeller shaft. Conversely, to operate astern propulsion, the forward clutch was engaged to drive the forward propeller shaft. Prior to the driving clutch engaging the required propeller shaft, a stopping clutch would bring the disengaged freewheeling shaft to a stop. The change-over in propulsion direction was reported to take several seconds, both to slow and stop the propelling shaft and then to engage the new shaft.

Figure 6: Lady Cutler schematic of propulsion unit



Source: Melbourne Showboat with annotations by the Office of the Chief Investigator Transport Safety.

The vessel had an operational rudder at both the stern and bow. When the vessel was steaming ahead, steering was by the stern rudder (using steering wheels). The bow rudder (using toggle controllers) was used when manoeuvring and using astern propulsion.

Navigation controls

Lady Cutler had three navigational control stations within its wheelhouse. The main conning position was centrally located, and auxiliary positions were located on the port and starboard sides. Normal navigational operations were conducted from the central console.

The auxiliary positions provided greater visibility when departing and coming alongside, and the port side conning position was therefore commonly used when berthing or departing from the Yanonung Quay. The starboard conning position was generally not used although it was maintained in an operational condition.

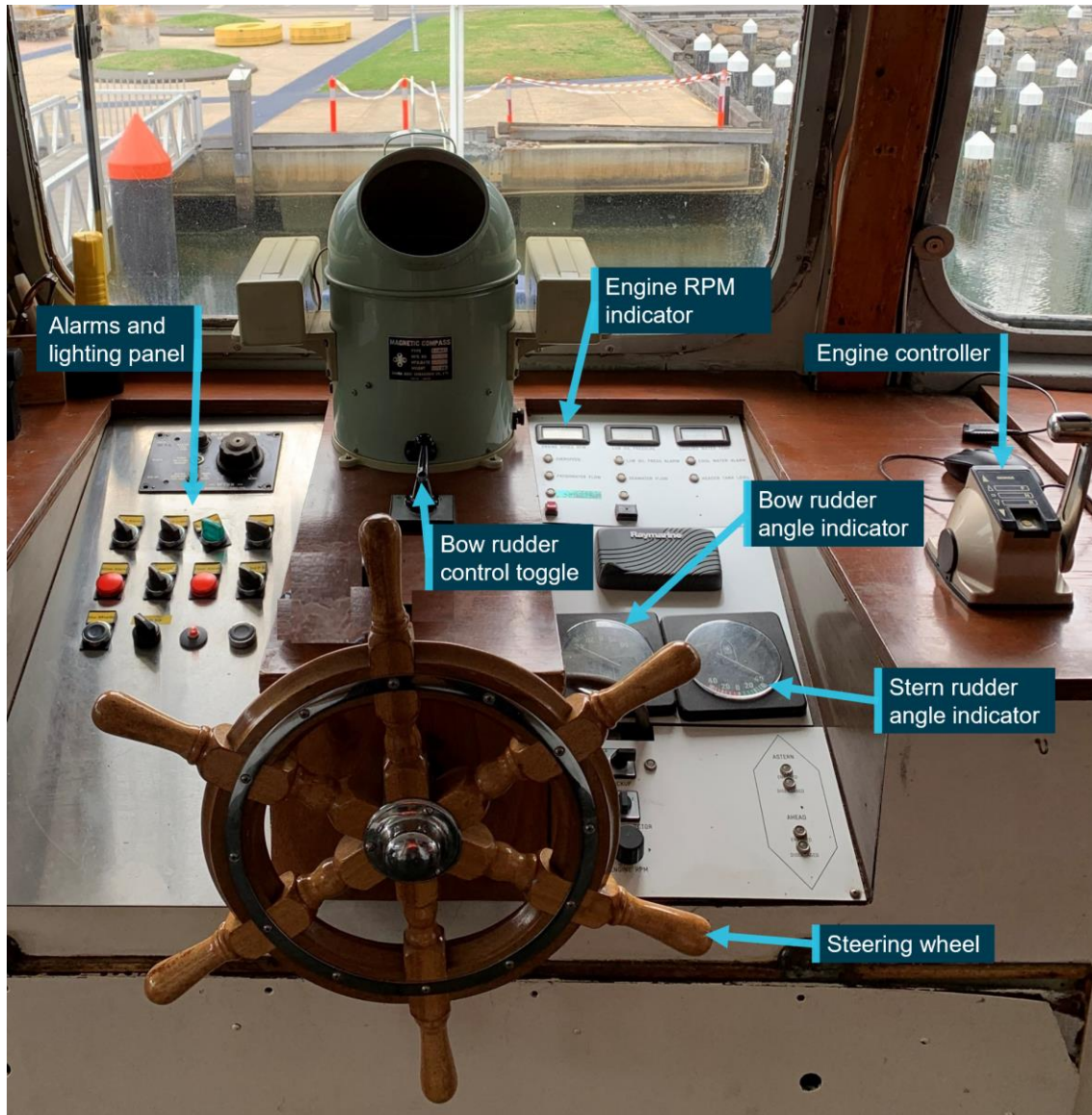
The steering controls were always active at all control positions, meaning the master could change location without any requirement to change-over steering control. However, engine control could only be conducted from one control station at any point in time, and change-over to a different control console required a specific process.

Indicators and available information differed between the central console and the two side consoles (Figures 7 and 8). Engine RPM information was available at the central console only, and a speed indicator fitted centrally on the wheelhouse deckhead could be viewed from the central position. The controls and indicators that were available at all stations included:

- a steering wheel for the stern rudder (including stern rudder angle indicator)
- a toggle switch for the bow rudder (including bow rudder angle indicator)
- an engine controller with neutral (N), ahead (F) and astern (R) positions.

The position of the controller handle at a particular control station did not necessarily indicate the direction of propulsion as this was dependent on which conning position was active.

Figure 7: Wheelhouse central navigation console



Source: Office of the Chief Investigator Transport Safety

Selecting the control console

To change control consoles, the following steps were required at the 'new' conning position:

- the engine control lever was required to be at the neutral position (N)
- the 'Select' button (Figure 8 inset) was then pressed to activate that console.

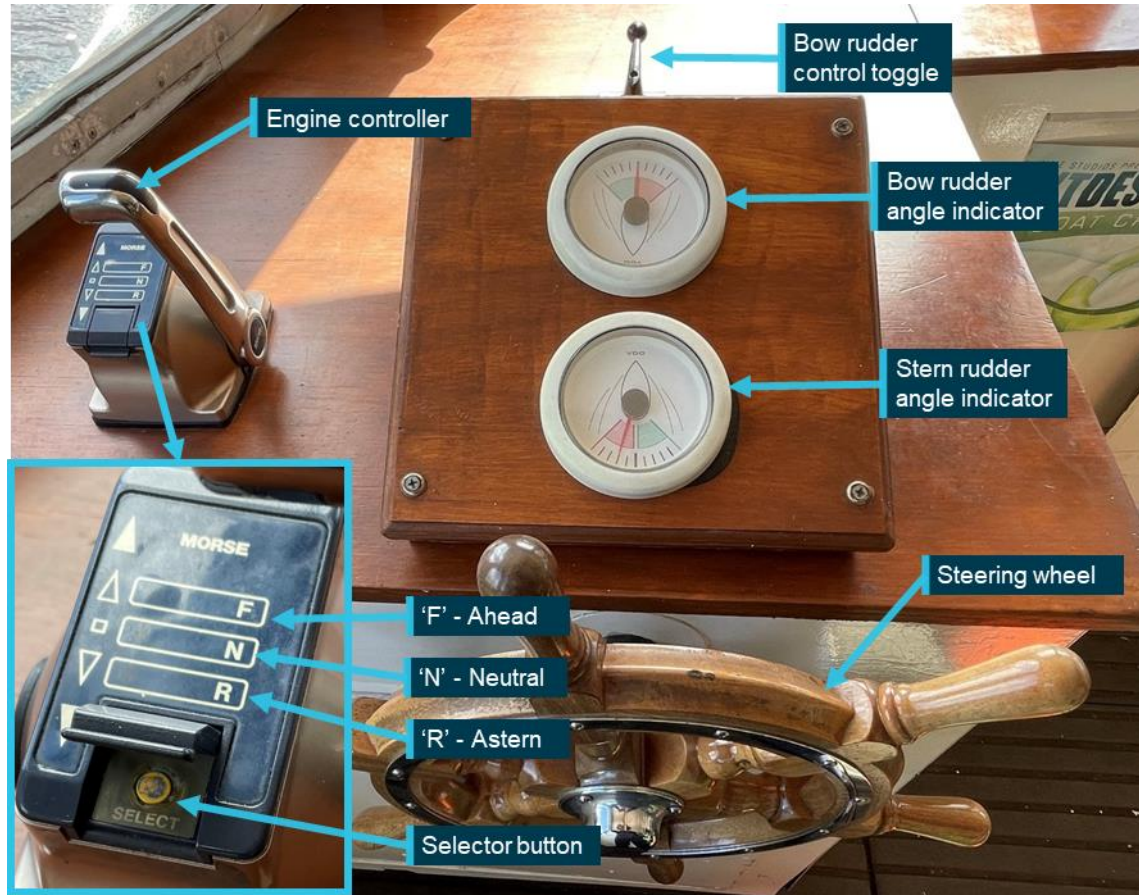
When successful, the console engaged indicator lamp next to the 'N' would be illuminated 'green', indicating that the console was active. As the (new) controller position was at neutral, the engine RPM returned to idle.

Engine controller positions

For ahead propulsion, the lever was moved to the 'F' position. A pneumatic clutch was activated and the shaft of the stern propellor was engaged, and the vessel operated at dead slow ahead (about 5 knots). The controller was moved further forward, past the 'F' position, to increase engine RPM and the vessel speed.

Similarly, astern propulsion was achieved by moving the engine controller to the 'R' position. This engaged the forward propeller and the vessel operated at dead slow astern. The controller was moved further back, past the 'R' position, to increase engine RPM and the vessel astern speed.

Figure 8: Lady Cutler port side navigation console



Source: Office of the Chief Investigator Transport Safety

When the control lever was placed in ahead or astern, a yellow light illuminated next to the 'F' or the 'R' respectively and the 'N' green light was extinguished. These indication lights were only illuminated at the active console. During post-incident inspection it was noted that the visibility of these indication lights could be affected by sunlight, and their visibility at the time of the incident could not be confirmed.

System functionality

On 20 January, Lady Cutler was relocated for repairs and the navigational and engineering systems operated satisfactorily during this trip.

Berthing operations

Advice from the regular masters of the Lady Cutler was sought on the typical techniques used to approach the berth at Yanonung Quay. They advised that the vessel would typically be navigated at dead slow ahead, travelling at between 4 and 5 knots, when it entered Victoria Harbour. Then, when about 200 m from the berth, the vessel would be lined up for its berth, engine control changed to the port side console and the engine put to idle ('N' on the controller) to commence speed reduction. The vessel was then steered from the port side control station to the berth with forward propulsion being engaged as required to maintain steerage.

The advice provided suggested that vessel speed was typically reduced to between 2 and 3 knots⁴ by the time the vessel's bow was in line with the beginning of the jetty. Then, when the wheelhouse was in line with the end of the jetty (about 26 m from its berthed position), the engine was put to dead slow astern. They stated that typically after about 4 seconds the astern propulsion would engage, and the vessel would gradually slow and be brought to a stop at its berth.

The master

Qualifications and experience

The master had about 35 years seagoing experience which included about 20 years' experience as master on tugs and offshore vessels.

The master was employed by Melbourne Showboat in November 2022. At the time of the incident the master held a Master < 35m NC (near coastal) certificate of competency⁵ issued by AMSA and valid until 6 November 2024. They also held a Certificate of Local Knowledge for the port waters of the Port of Melbourne and Port Phillip Bay, valid until 13 June 2023. These certificates were appropriate to be in command of Lady Cutler for the cruise undertaken.

Training of master

The master was engaged by Melbourne Showboat on a casual basis in November 2022. A review of the voyage logbook indicated that they undertook their first voyage on 23 November acting as the mate (second in command to the master) and completed a second trip as mate on 7 December followed by a trip as master under supervision on 9 December.

On 10 December they skippered the vessel independently and then for the next 5 trips was the understudy master or mate respectively. Each voyage was about three and a half hours duration, within the smooth waters area of Port Phillip and the Yarra River.

In all, the master sailed with 3 other masters. The company did not maintain a record of training for the master. The 3 supervising masters stated that the master was given the opportunity to berth/unberth the vessel on those trips and they were satisfied with the master's handling of the vessel.

The 14 January cruise was only the second time the master skippered Lady Cutler unsupervised. The master stated that they felt confident of being able to navigate the vessel when offered command, although, they noted that the Lady Cutler's controls were not as responsive as the tugs they had operated previously, and they were still learning the manoeuvring characteristics of the Lady Cutler. The master stated that they were also still familiarising themselves with the company's SMS.

Fitness for duty

Between 31 December and 14 January, the master undertook stevedoring work but did not work from 11 to 13 January. On 14 January, the master worked from 0700 to about 1330 and arrived at the Lady Cutler just before 1500. It was not possible to determine the quantity or quality of sleep obtained by the master in the days leading up to the occurrence. However, based on the available information (including the length of the duty period and the time of day), there was insufficient evidence to conclude that the master was experiencing a level of fatigue known to adversely influence performance at the time of the occurrence.

⁴ 2 knots is about 1 meter per second.

⁵ This certificate permitted the holder to command a commercial vessel less than 35 m long or be second in command of a commercial vessel less than 80 m long operating up to 600 nm from the mainland coast. AMSA Marine Order 505 (MO505) provided that from 1 January 2023, the Master <35 m NC corresponded to a Master <45 m NC permitting the holder to operate a vessel less than 45 m long in near coastal waters.

The company representative on board the vessel at the start of the cruise stated that they spoke to the master on their arrival and had no reason to believe that they were unfit for duty. The master stated that they had regular meals and kept themselves well hydrated throughout the day and during that afternoon's cruise.

After the incident, the master was tested for alcohol and drugs. The preliminary breath test for alcohol was negative, however an oral fluid test and the subsequent blood test were positive for an illicit substance. It was ascertained that the type and concentration of the substance detected could impact performance.

Recorded information

Lady Cutler was fitted with CCTV cameras to monitor the internal passenger spaces and the external decks on each side and to the stern of the vessel. The key sequence of events recorded are provided in Table 1.

Table 1: Summary of the sequence of events evidenced by CCTV

Time	Stern-facing camera	Upper deck camera (facing wheelhouse)	Description of event
17:39:37	Recording commenced, wash streaming astern		Ahead propulsion engaged
17:40:21	Wash streaming astern	Recording commenced, master not in view	Master out of view at the port side control console
17:40:45	Wash streaming astern	Master not in view	Wheelhouse in line with the end of the jetty (viewed from an external camera)
17:40:51	Wash streaming astern	Master comes into view and moves towards the central control console.	Ahead propulsion remained engaged
17:40:53	Wash streaming astern	Master appears to manipulate the controls on the central console	Master moved the propulsion controller (at central console) from ahead to astern
17:40:55	Wash streaming astern	Master moves to port side and is out of view	Master at port side console Propulsion still in ahead
17:40:57	Surge in the stern wash	Master not in view	Propeller turbulence
17:41:02	No stern wash	Master not in view	Impact with the wharf Passengers fall to deck (viewed from another camera)
17:41:06	Vessel moving astern	Master not in view	Vessel in astern propulsion
17:41:15	Vessel moving astern	Master moves briefly to central console then returns to port side	Vessel in astern propulsion Master navigating from port side console
17:41:35	Vessel moving astern	The master returns to the central console	The master now navigating from the central console
17:42:00	Vessel moving astern	Recording ends	Master navigating from the central console
17:42:36	Recording ends		

Safety management system (SMS)

Regulatory requirement

AMSA Marine Order 504 (MO 504)⁶ required an application for a vessel CoO to include a written declaration by the applicant that there was a safety management system (SMS)⁷ in place.

An SMS is a systematic approach to managing safety by following established policies and procedures to ensure the safety of a vessel and the people on board. A vessel SMS is required to demonstrate and document how a vessel meets the mandatory general safety duties.⁸

MO 504 required the SMS to include:

- the operational requirements that apply for the vessel and identify the risks to the safety of the vessel, the environment, and persons on or near the vessel, and
- procedures to eliminate or minimise those risks, and stated that the detail should be commensurate with the operation of the vessel and the risks identified in those operations.

Depending on the risk gating⁹ assigned to the vessel, AMSA could:

- note that the vessel had an SMS
- interrogate the SMS to ensure it included the structural elements of MO 504, Schedule 1.¹⁰

MO 504 stated that the operator was responsible for ensuring the level of detail and content within the SMS. It further stated that the SMS should be based on a risk assessment of the vessel's operations and how safety, maintenance and operation are managed on the vessel.¹¹

SMS inspection regime

Guidelines to marine inspectors were contained in AMSA's internal procedures in the form of Instructions to Staff (ITS). ITS 504-01 *Assessment of Certificate of Operation Applications* provided guidance in the assessment of applications for certificates of operation and ITS 504-02 *Guidelines for SMS Assessments* provided guidance for the assessment of safety management systems. These instructions articulated varying degrees of SMS assessment based on risk factors involved in the operation.

ITS 504-01 provided that for a high-risk¹² Class 1D vessel, SMS assessment was to initially focus on the following MO 504 Schedule 1 items:

- Section 2 – Risk assessment, review the risk assessment and register in relation to passenger operations;
- Section 7 – Procedures for onboard operations, review the procedures for passenger operations, ensuring any identified controls are in place, e.g. head counts, passenger monitoring, etc;
- Section 8 – Emergency preparedness, review passenger management and emergency training of crew and passengers.

⁶ Marine Order 504 (Certificates of operation and operation requirements — national law) 2018 made under the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012*.

⁷ The SMS is a document or series of documents which details all the company's important policies, practices, and procedures. Compliance with the SMS should ensure the safe operation of the vessel in all circumstances.

⁸ *Marine Safety (Domestic Commercial Vessels) National Law Act 2012 Act 2012 (Cth)*, Part 3.

⁹ AMSA uses the term 'gating' to determine the level of inspection of vessel SMS considering the type and age of the vessel, the conditions and nature of operation and the proposed operational area.

¹⁰ Marine Order 504 Schedule 1 – Operational Requirements, provides the structure for an SMS, the elements of operation and the risks that must be addressed to ensure that the vessel is operated as safely as possible.

¹¹ Australian Maritime Safety Authority website accessed on 28 March 2023.

¹² AMSA risk gating rules determined that a Class 1D vessel is "high risk" and therefore subject to closer scrutiny.

ITS 504-2 provided for a tiered approach when conducting SMS assessments and consisted of a combination of:

- Desktop Assessment; and/or
- On-board SMS Assessment; and/or
- SMS Verification Assessment.

The ITS suggested that in the first instance, the SMS assessment should be a desktop process; however, if the assessor considered that a further site/vessel SMS assessment was required, the application could be assigned to a marine inspector for action.

ITS 504-2 also required that the assessor should seek to confirm that a risk assessment was completed for key daily tasks.¹³ The document explained that a risk assessment is a 'systematic process for the evaluation of the vessel's key daily tasks, potential risks and appropriate crewing'.

AMSA conducted periodic inspections to ensure that the safety management system was being implemented. A risk grading¹⁴ system determined which vessels were targeted for proactive AMSA safety inspections from time to time outside of survey or CoO renewal.

ITS 63 Annex M *DCV Inspection Procedures* provided AMSA inspectors with guidance in relation to the conduct and frequency of those inspections. ITS 63 Annex M also provided guidance on the scope of SMS assessment required as part of those inspections.

AMSA would also inspect a vessel's SMS in cases of a complaint or an incident. If non-compliance or systemic findings were identified, the inspectors were required to conduct a detailed assessment of the SMS.

Lady Cutler SMS

When initially applying for a Certificate of Operation, the owners of the Lady Cutler declared that the vessel had a documented safety management system. The vessel was gated as high risk in its CoO assessment by virtue of being a passenger vessel certified to operate in D waters. As such, an SMS assessment was required and was undertaken by AMSA in May 2019 to confirm that the SMS addressed the structural elements of MO 504, Schedule 1. The assessment was to focus on risk assessment, procedures for onboard operations and emergency preparedness with respect to passenger operations. The detail within each element was not interrogated and the assessment did not identify that the operator had not defined the key daily tasks.

MV Lady Cutler was rated as a Priority 1 (highest) vessel and as such, subject to periodic inspections. An AMSA inspection in December 2021 found that Lady Cutler's emergency plan did not include vessel specific procedures for responding to emergency situations. The vessel owner was given three months to rectify the deficiency, which they did.

Following the 14 January 2023 incident, AMSA inspectors attended the vessel on 16 January and identified several deficiencies in the SMS and issued an improvement notice that the SMS address the following items:

- navigational aspects related to berthing and unberthing
- manning of the wheelhouse during critical phases of the voyage
- fatigue management for the skipper and the crew
- enforcement/monitoring of compliance with drug and alcohol policies for the crew.

¹³ ITS 504-2 stated that key daily tasks should be defined by the operator.

¹⁴ AMSA determined the grading of the vessel according to vessel type and the conditions and nature of its operations.

The AMSA inspection also found that the SMS did not adequately address training requirements for the master and the crew. In response, Melbourne Showboat updated their SMS. The Improvement Notice was closed by AMSA on 30 January 2023.

Safety analysis

The incident

Approaching its berth, the Lady Cutler was operating with ahead propulsion as evidenced by the propeller wash from the stern of the vessel. The engine controller at the central conning position was in the forward position (reported to be in dead slow ahead). The master was steering¹⁵ from the port side controls in preparation for the berthing and believed that they also had engine control, although this was later found not to be the case.

The most probable reasons for the unsuccessful propulsion control change-over to the port side console was that the master either did not return the port side controller to neutral before pressing the selector button or did not correctly press the button. There was no evidence of an electrical or mechanical defect in the control change-over system.

As the propulsion controller at the central console had remained active at its dead slow ahead setting, the vessel was probably travelling at a speed of between 4 and 5 knots as it approached the berth. This was greater than the practice of typically slowing to 2-3 knots on approach to the berth.

The master reported attempting to engage astern propulsion when the wheelhouse was adjacent to the end of the jetty. Other masters of the Lady Cutler reported using a similar location to engage astern propulsion. However, the application of astern propulsion to slow the vessel was unsuccessful almost certainly due to the propulsion control not being successfully changed over from the central control console to the port side control console. The vessel did not slow and continued under ahead propulsion.

After unsuccessfully attempting to engage astern propulsion from the port side controls, the master returned to the central conning position, placed that engine controller in the astern propulsion position, and then returned to the port side controls. The change from ahead to astern propulsion then took several seconds to become effective as it required the vessel's systems to disengage and slow one propeller shaft, and then engage and accelerate the other. By the time astern thrust was achieved, the Lady Cutler was a short distance from the wharf and its forward motion could not be arrested.

Master familiarity with vessel

The master had received familiarisation training on nine occasions over a period of about 8 weeks including opportunities to berth and unberth the vessel. The overseeing masters stated that they were satisfied with the master's ability to command the Lady Cutler, and the master also stated that they were comfortable to take command. However, the training and assessment was not structured nor documented. It is possible that during their training and familiarisation the master had not acquired sufficient knowledge and practiced application of the vessel's controls during berthing. Changing over the control consoles required the execution of specific actions. This incident suggests that the master was probably not sufficiently practiced in this process.

Prior to working on the Lady Cutler, the master skippered harbour tugs with highly responsive propulsion and steering capability. It is possible that the master's experience on these vessels also affected their judgement when operating the less manoeuvrable Lady Cutler.

¹⁵ All three steering wheels were active, irrespective of the control console that was selected.

Illicit substance

Post-incident testing of the master detected the presence of a substance that was prohibited for the operation of a domestic commercial vessel. The substance was also of a type and in a concentration sufficient to potentially affect performance.

The SMS of the Lady Cutler included a clause prohibiting consumption of alcohol or drugs in the workplace. However, there was no regime for detection, such as periodic random testing used in several other transport sectors.

Instrumentation to support navigation

Masters of the Lady Cutler did not have access to vessel speed or engine RPM information at the port and starboard consoles. Speed and/or engine RPM repeaters at the side console locations may assist masters during berthing operations.

Safety management system

The Lady Cutler was required to have a safety management system under its Certificate of Operation (CoO). Although the SMS for the Lady Cutler had the elements required by the governing regulation MO 504, it was not sufficiently detailed and specific to the operation of the Lady Cutler. Procedures for changing over control consoles, berthing and unberthing of the vessel, and characteristics of the steering and propulsion systems were not documented in the SMS.

Further, Lady Cutler's safety management system (SMS) did not have a structured program for the induction and training of masters, nor a requirement for documenting the assessment of competency.

Regulatory oversight of SMS for Domestic Commercial Vessels

AMSA used a risk-based approach for the oversight of SMS for domestic commercial vessels (DCV) that included assessment of the adequacy of a vessel's SMS by AMSA inspectors. For high-risk Class 1D vessels, guidelines to inspectors specified that the initial assessment of an SMS focus on risks associated with passenger operations, procedures for passenger operations (such as monitoring of passengers), and emergency preparedness (including passenger management). There was an opportunity to consider expanding the initial assessment of SMS on high-risk DCVs to include review of other safety critical onboard tasks specified in MO 504.

Findings

The Chief Investigator, Transport Safety's investigation report findings focus on safety factors (that is, events and conditions that increase risk). Safety factors include 'contributing factors' and 'other factors that increased risk' (that is, factors that did not meet the definition of a contributing factor for this occurrence but were still considered important to include in the report for the purpose of increasing awareness and enhancing safety). In addition, 'other findings' may be included to provide important information about topics other than safety factors.

Safety issues are highlighted in bold to emphasise their importance. A safety issue is a safety factor that (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operating environment at a specific point in time.

These findings should not be read as apportioning blame or liability to any organisation or individual.

The following findings are made with respect to the impact with wharf by MV Lady Cutler at Docklands, Victoria on 14 January 2023.

Contributing factors

- The application of astern propulsion to slow the vessel as it approached its berth was delayed, almost certainly due to propulsion control not being changed over from the central control console to the port side control console. The master was at the port side controls and their attempts to engage astern propulsion were unsuccessful.
- The Lady Cutler approached its berth at a speed of probably between 4 and 5 knots and greater than the typical practice of 2 to 3 knots. This reduced the time available for the master to make corrections for the delayed engagement of astern propulsion.

Other factors that increased risk

- The master of the Lady Cutler was new to this vessel and was probably not sufficiently practiced in the change-over process for engine control.
- Post-incident testing of the master detected the presence of an illicit substance that was of a type and concentration sufficient to potentially affect their performance.
- **The safety management system for the Lady Cutler did not have a structured program for induction, training and competency assessment of masters, sufficient detail of some vessel operating procedures, nor a regime for monitoring compliance with the drug and alcohol policy.** (Safety Issue)

Other findings

- The port and starboard side control stations were not fitted with speed or engine RPM indicators. Such indicators may assist masters during manoeuvring operations.
- There was an opportunity for the Australian Maritime Safety Authority to expand the regulatory oversight of safety management systems of Domestic Commercial Vessels designated high-risk.

Safety issues and actions

Central to the Chief Investigator, Transport Safety’s investigation of marine safety matters is the early identification of safety issues. The Chief Investigator expects relevant organisations will address all safety issues an investigation identifies.

Depending on the level of risk of a safety issue, the extent of corrective action taken by the relevant organisation(s), or the desirability of directing a broad safety message to the marine industry, the Chief Investigator may issue a formal safety recommendation or safety advisory notice as part of the final report.

All directly involved parties were invited to provide submissions to this draft report. As part of that process, each organisation was asked to communicate what safety actions, if any, they had carried out or were planning to carry out in relation to each safety issue relevant to their organisation.

Lady Cutler safety management system

Safety issue description

The safety management system for the Lady Cutler did not have a structured program for induction, training and competency assessment of masters, sufficient detail of some vessel operating procedures, nor a regime for monitoring compliance with the drug and alcohol policy.

Safety action taken by Melbourne Showboat

Melbourne Showboat has updated its safety management system to provide:

- a statement on the master’s responsibilities and authority, including a detailed list of responsibilities that the master is required to accept and sign
- a checklist to be completed by a designated competent person assessing the master’s capability in vessel operation, including safety critical shipboard activities
- detailed instructions and guidelines for manoeuvring the vessel including switching navigational consoles
- a regime for ‘reasonable cause testing’ and ‘post-incident testing’ while reinforcing their ‘zero tolerance’ approach with regard to drugs and alcohol.

Chief Investigator, Transport Safety comment

The safety actions taken by Melbourne Showboat should mitigate the risks associated with this safety issue.

Sources and submissions

Sources of information

The sources of information during the investigation included the:

- Melbourne Showboat
- The master and engineers aboard Lady Cutler at the time of the incident
- The supervising/training masters
- Australian Maritime Safety Authority (AMSA)
- Victoria Police
- WorkSafe Victoria
- Maritime Survey Australia

References

Marine Safety (Domestic Commercial Vessels) National Law Act 2012 Act 2012 (Cth)

Australian Maritime Safety Authority, Marine Order 504

Australian Maritime Safety Authority, Instructions to Surveyors Nos 504-1, 504-2 and 63 Annex M

Submissions

Section 85A of the *Transport (Compliance and Miscellaneous) Act 1983*, requires the Chief Investigator, Transport Safety to consult with any person or body who has assisted the Chief Investigator, Transport Safety with the investigation; and any person or body to whom the report may be relevant.

A draft of this report was provided to organisations and individuals to confirm factual accuracy and/or where parties were potentially affected by findings within the report. Submissions from those parties were reviewed and, where considered appropriate, the text of the report was amended.