



## SIMPLIFIED SAFETY INVESTIGATION REPORT

201509/003

REPORT NO.: 17/2016

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The Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011 prescribe that the sole objective of marine safety investigations carried out in accordance with the regulations, including analysis, conclusions, and recommendations, which either result from them or are part of the process thereof, shall be the prevention of future marine accidents and incidents through the ascertainment of causes, contributing factors and circumstances.

Moreover, it is not the purpose of marine safety investigations carried out in accordance with these regulations to apportion blame or determine civil and criminal liabilities.

### NOTE

This report is not written with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

The report may therefore be misleading if used for purposes other than the promulgation of safety lessons.

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### **MY *Namaste 8*** **Serious injury to passenger** **while using a powered surfboard** **03 September 2015**

#### **Course of events**

On 03 September 2015, the motor yacht *Namaste 8* left the island of Capri for Ischia with eight passengers on board. At about 1330, she anchored in St. Angelo Bay, Ischia in position 40° 41.8' N 013° 55.1' E. The weather was clear with good visibility. There was no wind and the sea was calm. The air and sea temperature were 31° C and 28° C respectively.

A newly set of acquired powered surfboards were fuelled and prepared for the passengers to ride on. This was the third occasion since delivery that the surfboards were put in the water. The master, the chief mate and the yacht's owner briefed the passengers on how to ride the surfboards.

The passengers were informed on the procedure to start the engine, accelerate, slow down, turn and release the control handle to disengage the ignition

key and shut down the engine following a fall.

These instructions were followed by a practical demonstration in the water. Passengers were then provided with high impact water sports jackets. The safety helmets, though available on board, were not worn by any of the riders.

The first passenger entered the water and was assisted by one of the deckhand to steer and control the surfboard until she was confident enough to ride alone. The deckhand then turned his attention to other riders waiting for their turn on the second surfboard.

At 1415, the master got on the tender to keep an eye on the passengers, while the chief mate stayed on board, around the transom area of the yacht. At 1435, the passenger who was first in the water fell from her surfboard.

Soon after her fall, the surfboard spun around and hit her on the head. The master noticed the fall and manoeuvred his boat to her aid. With the help of the deck hand, she was assisted out of the water and transferred onto the yacht. The passenger was reportedly dazed, confused and bleeding from a wound above the left ear.

After administering first aid, the master headed the yacht towards Naples for medical assistance. As the passenger was being helped into the master suite, she reportedly had a 'seizure'<sup>1</sup> and was placed in a recovery position. Consequently, Naples Radio directed the master to head to Ischia. At 1530, *Namaste 8* arrived at the Ischia Marina and the injured passenger was transported by ambulance to a local hospital for further treatment.

The master reported that the injured passenger suffered a compound fracture to the skull and had a hairline fracture in one of the vertebrae in the neck. She also had a deep laceration forward of her left ear.

### The powered surfboards

*Namaste 8* had two tenders and carries a number of sporting equipment in the yacht's enclosed cargo space. Part of this equipment was the powered surfboards.

The powered surfboards were designed by race engineers (Figure 1) manufactured by JetSurf s.r.o, Brno, Czech Republic. The boards were handmade and manufactured from carbon fibre. Each had a two-stroke internal combustion engine, powering a water-jet pump for propulsion.

The drive unit was manufactured by MSR Engines s.r.o., of Brno and certified that it complies with EU noise and emission standards. Depending on the engine

displacement/type, the surfboard could reach speeds of up to 30 knots. The surfboards were 1800 mm in length, 600 mm wide and 150 mm thick, weighing about 17 kg.



Figure 1: The powered surfboard available on *Namaste 8*

The powered surfboard that was being used at the time of the accident was controlled by the rider using a control handle (Figure 2) attached at the end of the throttle cable.

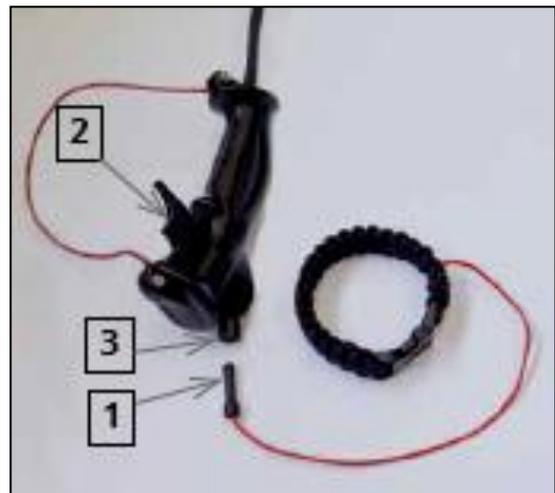


Figure 2: Surfboard's control handle – (1) starter key with kill cord, (2) trigger to control throttle cables, (3) ignition slot

A magnetic starter key attached to a kill cord is designed to be worn around the wrist of the leading hand of the rider. The engine can only be powered when the starter key is inserted in the ignition slot. If the key is removed, the engine is instantly disabled.

The forward propulsion of the surfboard is controlled by squeezing a throttle trigger in the control handle. The handle is designed to be operated by the rider's index finger. The rider could adopt a standing, sitting and/or

<sup>1</sup> Seizures are a symptom of disorders that affect the brain.

kneeling position. Squeezing the trigger accelerated the movement of the surfboard; releasing it slowed the speed and returned the engine to idle speed.

### Training and delivery of the powered surfboards

Namaste 8 purchased the surfboards from a supplier in Antibes, France who in turn sourced them through Luxury Water Toys Ltd.

On 06 August 2015, an instructor travelled to La Ciotat, France to provide practical training and instructions to three of the yacht's crew members. For this purpose, he was using a demonstration surfboard. On 29 August 2015, two powered surfboards – JetSurf Factory GP100<sup>2</sup> were delivered in Ajaccio, Corsica (Figure 3).

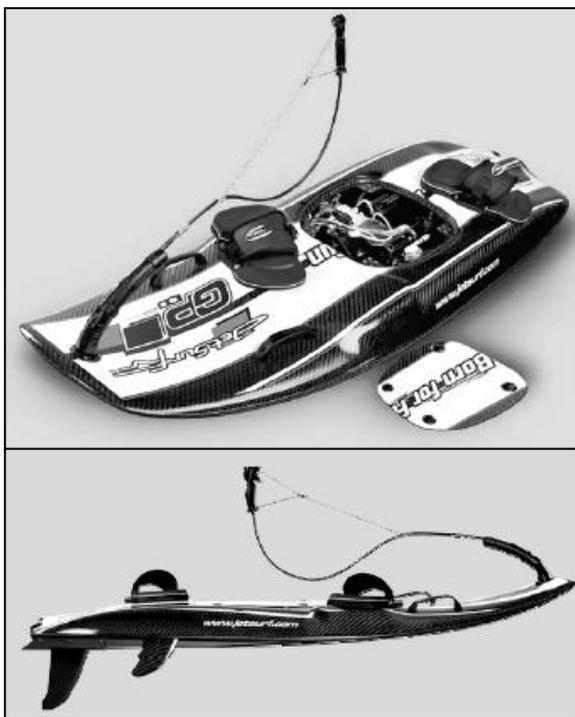


Figure 3: Powered surfboard profile

On 04 September 2015, the master confirmed that he had not been delivered the User Manuals and declared that further enquiries to obtain a copy from the suppliers had not

<sup>2</sup> Jet surfboards were reportedly delivered without the Jetsurf User manual.

been successful. Nonetheless, the jet surfboards came with an illustration of five key symbols and a checklist for the engine and control unit. One of the symbols displayed a graphic image of a helmet with a caption ‘the use of helmets is highly recommended and must be used in surf conditions’ (Figure 4).

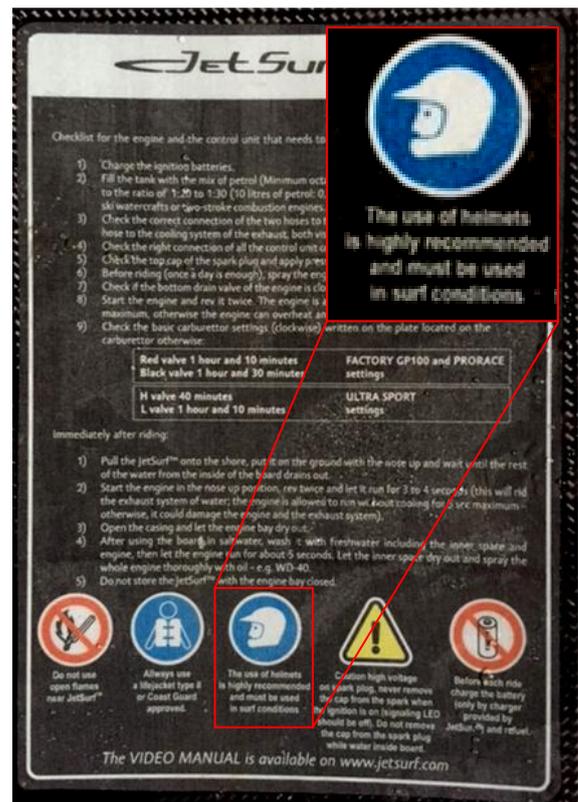


Figure 4: Safety symbols displayed on the surfboard

Following delivery, the surfboards were extensively tried out by both the crew and the passengers.

### Safety information

The JetSurf User Manual Version 15-02<sup>3</sup> provided basic information on safety and operation of the surfboard.

<sup>3</sup> A copy of JetSurf User Manual Version 15-02 was forwarded to the MSIU by the Italian maritime authorities on 15 September 2015.

Key elements for the rider to note were the functions of starter key and control handle. The Manual specified that the cord of the starter key must be wrapped around the rider's wrist and that it was imperative that the control handle is released when balance is lost.

The Manual further explained that letting go of the control handle would pull the starter key out of the ignition box which automatically stops the engine. This would ensure that the surfboard's forward motion is instantly halted to prevent the rider (or other persons) from being seriously injured or killed.

The Manual also stated that all riders had to wear a safety helmet and a life vest. Additional details were found in a separate section on 'Clothing' which, *inter alia*, stated, "...[h]elmets are a compulsory item of safety gear and must be worn at all times. It is expected that operators will, from time to time, fall off the power board, even in normal operation. Helmets provide protection in the event the operator's head would strike the board. Helmets are therefore a mandatory accessory and should be manufactured to wear on the water, fit properly and be relatively lightweight."

### **Cause of the injury<sup>4</sup>**

The propulsion and speed of the surfboard is controlled by the rider using the throttle trigger in the control handle. In the event of the rider falling off the board and the control handle dropped, the ignition key is pulled out, quickly disengaging the engine.

The master recalled that when the passenger fell from the surfboard, the latter kept her grip on the control handle. With the trigger

depressed, the surfboard accelerated forward as it reached the end of the throttle cable. Before the control handle was released, the surfboard pivoted on the throttle cable, changed direction and eventually struck her on the head.

The MSIU could neither substantiated nor verify the master's account. However, his version was considered to be plausible and it was deemed possible that the passenger had actually held her grip on the control handle.

### **Inexperienced operators**

The MSIU believes that the passenger's limited experience in the use of the powered surfboard and the fall into the water led her into a situation where she was not in phase with the evolution of what (initially) was not an accident<sup>5</sup>.

It does seem that since the passenger kept holding to the trigger, the powered surfboard propelled away from her, possibly leading to a situation where the hold on the trigger was a spontaneous reaction not to lose control of the surfboard. What was actually required was the inverse of the action taken – to resume control of the surfboard, the passenger actually had to let go of the trigger.

It is apparent to the MSIU that the critical situation was caused by a combination of an 'emergency', followed by loss of control in a short span of time, resulting in a minimal room to recover, if any.

### **Operator's control**

This accident highlighted an important factor in that the control of the surfboard is actually depending on an important link between the operator and the equipment. Failure of this link can actually lead to undesirable situations and this accident was a case in point.

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<sup>4</sup> The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, and to prevent further marine casualties and incidents from occurring in the future.

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<sup>5</sup> The fall from the surfboard cannot be considered as an accident.

The MSIU is of the view that the operator-surfboard interaction can be improved in two ways, mainly, training operators and enhance the embedded system safety design.

The training of the operators should also include explicit consideration and examples of human reactions and not limited to the operation of the surfboard. The system design, on the other hand, should be such that it takes into consideration human interaction with the equipment and possible safety concerns during a fall.

As the accident indicated, falling from the surfboard but not releasing the grip on the trigger had actually by-passed a rather effective safety barrier system embedded within the equipment.

#### **Potential conflicting signals**

During the course of the safety investigation, the MSIU had access to a number of images of riders on the Luxury Water Toys website<sup>6</sup> not wearing the mandatory safety helmets. As indicated elsewhere, safety helmets were recommended as an important part of the safety gear and had to be worn at all times.

The same conflicting messages were also observed in the User Manual and the illustration on the surfboard (with respect to the wearing of the safety helmet). Whereas, the User Manual emphasised that it is *mandatory* to wear a safety helmet, the illustration on the surfboard made a *recommendation* to this effect.

## **RECOMMENDATIONS**

Namaste and Navigation Limited is recommended to:

**17/2016\_R1** consult with the manufacturers to reduce the maximum speed limit, considering the potential limited experience and lack of skills which the operators maybe have.

JetSurf/Luxury Water Toys Ltd. is recommended to:

**17/2016\_R2** issue a safety alert to highlight the importance of releasing the control handle as soon as the rider falls from the surfboard;

**17/2016\_R3** consider a failsafe design which ensures that the engine is shut down without relying on the operator's release of the control handle;

**17/2016\_R4** only upload images on its website of operators wearing full safety gear;

**17/2016\_R5** amend all the safety instructions in order to ensure that there are no conflicting messages with respect to wearing of the safety helmets.

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<sup>6</sup> JetSurf s. r. o., website [www.jet-surf.com](http://www.jet-surf.com) was unavailable at the time of the safety investigation.

## SHIP PARTICULARS

Vessel Name:	<i>Namaste 8</i>
Flag:	Malta
Classification Society:	Registro Italiano Navale
IMO Number:	8736054
Type:	Commercial Yacht*
Registered Owner:	Namaste and Navigation Limited
Managers:	Not Applicable
Construction:	GRP
Length Overall:	39.98 m
Registered Length:	33.86 m
Gross Tonnage:	358
Minimum Safe Manning:	7
Authorised Cargo:	Not Applicable

## VOYAGE PARTICULARS

Port of Departure:	Capri, Italy
Port of Arrival:	Ischia, Italy
Type of Voyage:	Coastal
Cargo Information:	Not Applicable
Manning:	7

## MARINE OCCURRENCE INFORMATION

Date and Time:	03 September 2015 at 1435 (LT)
Classification of Occurrence:	Serious Marine Casualty
Location of Occurrence:	09° 41.0'N 080° 15.9'W
Place on Board	Not Applicable
Injuries / Fatalities:	One serious injury
Damage / Environmental Impact:	Not Applicable
Ship Operation:	On Anchor
Voyage Segment:	Arrival
External & Internal Environment:	The weather was clear with good visibility. There was no wind and the sea was calm. The air and sea temperature respectively was 31° C and 28° C.
Persons on board:	15

\* At the time of the accident, the vessel was registered as a 'Commercial Yacht'. Since then, she has been registered as a 'Pleasure Craft' (05 April 2016).