Marine Safety Investigation Unit

Transport Malta

SAFETY INVESTIGATION REPORT

202009/009 REPORT NO.: 18/2021 September 2021

This safety investigation has been conducted with the assistance and cooperation of the Transport Safety Investigation Center, Turkey.

MV *RIMONA*
Fatal injury to a crew member during cargo loading operations, on the pier at the port of Habas, Turkey 09 September 2020

SUMMARY

Rimona was berthed in the port of Habas, Turkey, loading a cargo of steel products by a shore crane. The crew were required to tally the cargo, prior to its loading on board.

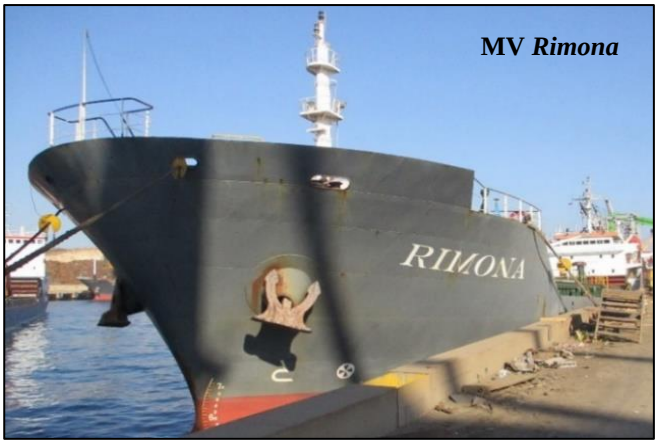
During the night of 09 September 2020, the third officer and an able seafarer (deck) were on watch, near the vessel's gangway, with several trucks approaching the vessel with the cargo.

The able seafarer went on the pier to tally the cargo, while the third officer stayed on the gangway.

About 15 minutes later, the third officer received a call for help from the able seafarer. On site, it was noticed that the able seafarer was caught between the shore crane and one of the trucks.

The able seafarer was immediately transferred to a shore hospital, for treatment. However, he succumbed to his injuries during the following day.

Considering the safety actions taken by the Company, no recommendations have been issued by the MSIU.



MV *Rimona*

FACTUAL INFORMATION

Vessel

Rimona was a 5,222 gt bulk carrier owned by Rimona Shipping Ltd. and managed by Platin Shipping and Trading Co. Ltd., Turkey. She was built by Ningbo Xinle Shipbuilding Co. Ltd., China, in 2007. The vessel was classed with Registro Italiano Navale (RINA). The Russian Maritime Register of Shipping (RMRS) acted as the recognized organization, for the International Safety Management System of the vessel and the Company.

Rimona was fitted with two cargo holds. The vessel had a length overall of 119.95 m, a moulded breadth of 16.80 m and a moulded depth of 8.20 m. She had a summer draught of 6.71 m, which corresponded to a summer deadweight of 8,160.3 metric tonnes (mt). At the time of the occurrence, her forward draught was recorded as 4.20 m, while her aft draught was recorded as 5.20 m.

Propulsive power was provided by an 8-cylinder, four-stroke, single-acting, medium speed, Daihatsu 8DKM-28 marine diesel engine, which produced 2,500 kW at 750 rpm. This drove a fixed-pitch propeller, enabling *Rimona* to reach an estimated speed of 12 knots.

Crew

Rimona's Minimum Safe Manning Certificate stipulated a crew of 12. At the time of the accident, the vessel was manned by 14 Ukrainian crew members.

The fatally injured able seafarer (AB) was 25 years old. He had about seven years of seafaring experience, all of which were served as an able seafarer (deck) with STCW[1] II/5 qualifications. His most recent certificate of proficiency was issued by the Ukrainian authorities in 2018. He had joined the vessel on 31 July 2020, from the port of Galati, Romania, and this was his first employment contract with the Company. For the month of September 2020, the AB was assigned the 0800 to 1200 and 2000 to 2400 watches at sea and in port.

The master was 49 years old. He had around 31 years of seafaring experience, about five of which were served in the rank of a master. He held STCW II/2 qualifications for a master, and his most recent certificate of competency was issued by the Ukrainian authorities in 2016. He had joined the vessel on 11 April 2020, from the port of Berdyansk, Ukraine.

The third officer (deck officer) was 33 years old. He had around 10 years of seafaring experience, about six of which were served in the rank of a third officer with STCW II/1 qualifications. His most recent certificate of competency was issued by the Ukrainian authorities in 2017. He too had joined the vessel on 31 July 2020, from the port of Galati, Romania. The OOW was assigned the 0800 to 1200 and 2000 to 2400 watches at sea and in port.

Narrative[2]

Rimona arrived at the port of Habas, Turkey, in the afternoon of 07 September 2020, where she was scheduled to load a cargo of steel reinforcing bars (rebars). The voyage instructions by the vessel's charterers required the crew members to tally the quantity of cargo loaded on board the vessel.

In the evening of 07 September, the master issued written instructions to the deck officers, for the vessel's stay at this port. Crew members were required to carefully tally the cargo arriving on trucks, and to wear a helmet, overalls, safety shoes and a face

[1] IMO. (2010). *The Manila amendments to the annex to the International convention on standards of training, certification and watchkeeping for seafarers (STCW), 1978*. London: Author.

[2] Unless specified otherwise, all times mentioned in this safety investigation report are in local time (LT = UTC + 3).

mask[3] during the operation. The vessel's able seafarers (deck) were assigned the tallying of the cargo on the pier, during their respective watches.

The cargo of steel rebars bundles, was being brought alongside the vessel on open trailer trucks (Figure 1). The bundles were then lifted from the trucks by a shore crane and loaded on board the vessel (Figure 2).

Figure 1: An open trailer truck, identical to the ones on which the cargo was brought alongside *Rimona*

Figure 2: The shore crane used for cargo loading

[3] The face mask was a protective measure due to the COVID-19 pandemic.

On 09 September, the deck officer and AB took over the watch at 2000. They were each carrying a portable two-way radio. Reportedly, cargo operations were taking place at a slow pace and, at the time when they had taken over the watch, no truck was on the pier. The shore crane was positioned abreast of *Rimona*'s cargo hold no. 1, with its jib reaching towards vessel's bow.

At around 2105, while the deck officer and the AB were at the vessel's gangway, several open trailer trucks arrived with cargo on them. The AB disembarked from the vessel and proceeded towards the shore crane with a cargo tally sheet in hand, while the deck officer remained at the gangway. As the AB went beyond the crane, he was out of the deck officer's sight (Figure 3).

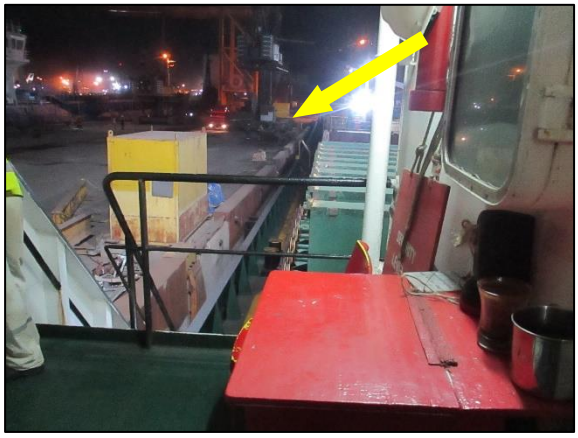


Figure 3: View from the deck officer's position (the shore crane is indicated by the yellow arrow)

At about 2115, the deck officer heard the AB calling for help over the portable radio. The deck officer rushed to the pier towards the crane. On his way, he observed people shouting and running towards the shore crane. Reaching the forward area of the crane, he saw the AB in pain, lying on the pier, between the shore crane and an open trailer truck (Figure 4).

The front bumper of the truck was about three metres away from the shore crane, facing the latter and with signs of fresh damages (Figure 5), while a protective steel

fender bar of the shore crane had been deformed (Figure 6).

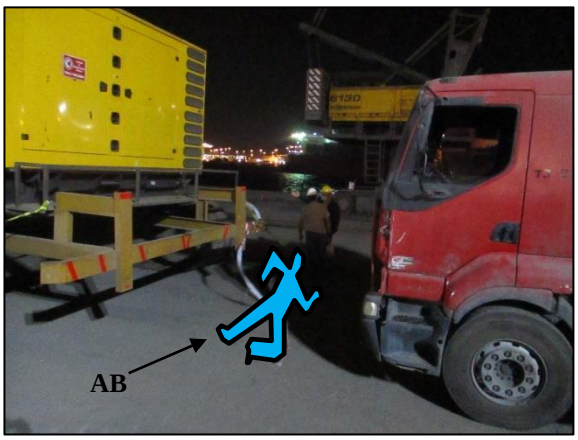


Figure 4: The accident site

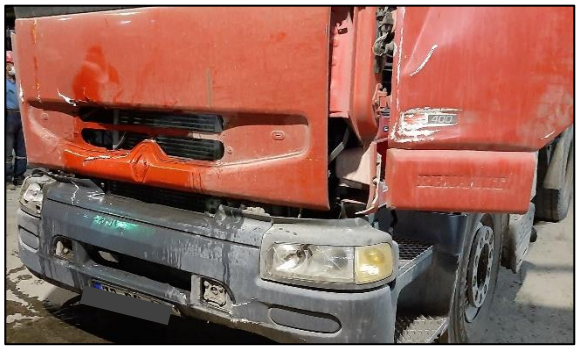


Figure 5: The damaged front of the truck involved

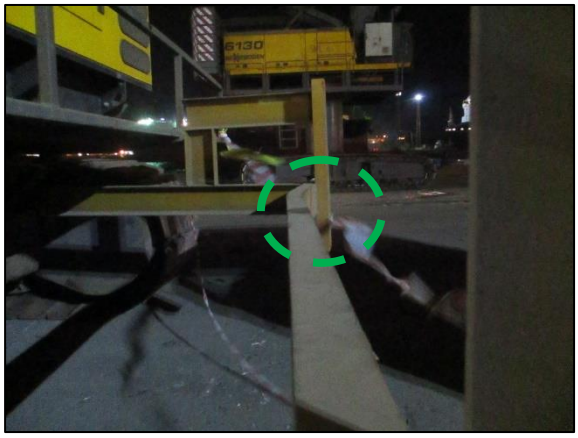


Figure 6: Deformed steel fender bar of the shore crane (green circle)

The AB informed the deck officer that he was struck by the truck and was caught between the truck and the shore crane. The AB complained of immense pain. The deck officer reassured the injured crew member and immediately ran back on board, notified the master, and rushed back to the accident site.

Dynamics of the accident, according to port personnel

The accident had been witnessed by a couple of port personnel, who were engaged with the slinging and lifting of the cargo from the truck.

According to these witnesses, the truck driver was outside the truck when the cargo bundles were being slung and lifted by the shore crane. Just as the sling of the last cargo bundle was being passed onto the crane's hook, port personnel noticed the truck moving forward. Around this time, they also noticed the truck driver running towards the truck, attempting to reach and stop it; however, his attempt was unsuccessful.

On approaching the front of the truck, after the accident, port personnel saw the AB pinned between the truck and the shore crane's fender bar. They immediately instructed the driver, who by this time was inside the truck, to reverse.

Post-accident events

The master called the vessel's local agent, informed him about the accident and requested him to arrange for an ambulance. Thereafter, he made his way to the accident site.

An ambulance was on site within 10 minutes and the injured AB was transferred to the nearest hospital. The master instructed the deck officer to travel along with the AB, for any assistance that may be required. At the hospital, the AB was diagnosed with internal bleeding and was transferred to another hospital for emergency surgery.

In the meantime, the master notified the Company and other relevant parties.

Injuries suffered by the AB

The medical examination revealed rib and pelvic bone fractures, along with internal organ injuries and internal bleeding. No notable external injuries were observed. He succumbed to his injuries on 10 September 2020, at the hospital.

Examination of the truck

Following the accident, the local authorities required the open trailer truck to be examined by an expert to determine whether any technical and / or mechanical failure had contributed to the accident. The expert examined the braking system and tyres of the open trailer truck, as well as the ground surface at the accident site and reported the following:

- the hand brake mechanism was found to be fully operational, without any visible damages to its components;
- the tyre treads were in good condition;
- the ground surface, consisting mainly of concrete and partly asphalt, was dry and slightly sloped towards the rear of the truck, *i.e.*, opposite to the direction of the accident;
- engaging the first gear and declutching the gearbox (with the hand brake applied), it was observed that the tyres of the trailer did not turn; and
- tyre marks were left on the concrete / asphalt surface due to the hand brake holding power (Figure 7).

Truck driver

The MSIU was informed that the truck driver had been in employment with the shore company for two days. Available information also revealed that the driver did not remain on scene after the accident[4].

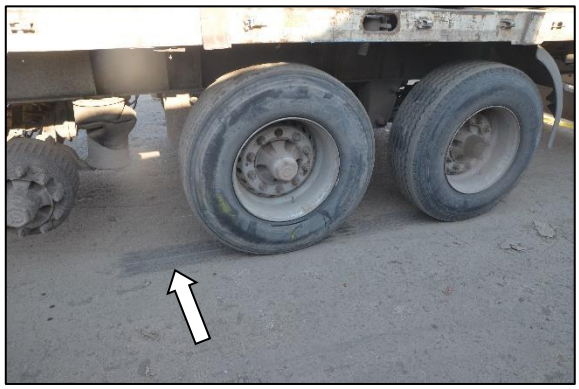


Figure 7: Tyre marks on the ground surface, caused by the tyres of the trailer during examinations by the expert

It was concluded that the truck's brake mechanism and its tyres were in good condition and, thereby, did not contribute to the accident.

The expert also concluded that the hand brake had not been engaged after the truck was stopped to offload its cargo.

Personal protective equipment and lighting conditions

Evidence indicated that the fatally injured AB was wearing a hard hat, coveralls with reflective tapes, and a pair of safety shoes.

The area around the accident site was lit by the vessel's and shore crane's floodlights, and the reflective tapes on the fatally injured AB's coveralls were found to be effective in those lighting conditions.

Records of the fatally injured AB's hours of work / rest

The AB's work / rest hour records indicated that his rest periods were in line with the requirements of the STCW Code[5].

[4] At the time of the safety investigation's consultation process, the whereabouts of the driver were still unknown and to that extent, it was not possible for the safety investigation to discuss the accident with him. Moreover, information on previous employment of the truck driver was not available to the safety investigation.

[5] IMO. (2010). *The Manila amendments to the annex to the International convention on standards*

Following watch-keeping duties from 0800 to 1200, he had eight consecutive hours of rest, prior to resuming duty at 2000, on the day of the accident.

Consumption of drugs and/or alcohol

The toxicological tests neither detected alcohol nor drugs / illicit substances in the fatally injured AB, except for medication.

ANALYSIS

Aim

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 or incidents from occurring in the future.

Cooperation

During this safety investigation, the MSIU received all the necessary assistance and cooperation from the Transport Safety Investigation Center, Turkey.

Cause of the accident

The cargo tally sheet, which was in the hand of the AB at the time of the accident, indicated that the cargo on the truck had been accounted for. This suggested that the truck had stopped in front of the crane[6] and the cargo on it had already been checked by the AB. It therefore appeared that after recording the cargo on this truck, the AB moved towards the shore crane and stood between the front of the truck and the shore crane.

Considering the slope of the ground surface at the accident site, the open trailer truck would have been expected to roll away from the crew member when the brakes were not engaged.

The expert engaged by the local authorities noted that when the open trailer truck was heavily loaded, the tyre contact patch area on the ground would have increased, contributing further to the truck remaining stationary. It was not excluded, however, that with the reduction of the load, the truck would roll down the slope unless a resistance (brake) was applied. In his opinion, however, impacts of the cargo on the forward section of the open trailer truck, when the cargo was being lifted by the crane, could have caused the truck to move forward.

In view of the condition of the brake mechanism, this forward motion would have been halted had the hand brake been engaged. It was therefore hypothesized that the hand brake of the truck was not engaged and, consequently, nothing prevented the truck from rolling forward until it struck the shore crane and entrapped the AB.

Based on the expert's findings and the witnesses' accounts of the accident, the safety investigation considered it highly likely that the hand brake of the truck had not been engaged after the truck was stopped and the truck started to move forward when external forces acted on the chassis and suspension system, during the lifting and unloading of the heavy cargo.

Safety investigation's hypothesis on the accident

The safety investigation hypothesized that the truck driver may have been unaware that if the hand brake was not applied, the truck could still move. This hypothesis was made, bearing in mind the conclusions of the expert

---

of training, certification and watchkeeping for seafarers (STCW), 1978. London: Author.

[6] The MSIU did not have any information on the actual position at which the truck had stopped; however, information from the local port authorities indicated that trucks usually stop around two to three metres from the shore cranes, although this would depend on the cranes' safe working loads and lifting angles.

engaged by the local authorities, the reported information that the truck driver had been employed in this role with this shore company for only two days prior to the accident (and perhaps not acclimatised) and, in the absence of the truck driver's account.

It was also likely that the truck driver, as well as the other port personnel working on site, may have been unaware of the position of the AB, after he had completed the tallying of the cargo to be loaded. Although the lighting conditions and the reflective tapes of the AB's coveralls would have been visible, neither the driver nor the port personnel were aware of the AB's whereabouts and therefore could not caution him of the hazards.

Fatigue and the consumption of drugs and/or alcohol

The AB's work / rest hours met the relevant requirements, and he had a rest period of eight consecutive hours, prior to resuming duty before the accident. The safety investigation, however, could not confirm the quality of his rest hours.

Nonetheless, in the absence of any evidence which could have indicated that the actions or behaviour of the AB were symptomatic of fatigue, fatigue of the AB was not considered contributory to this accident.

The toxicological tests carried out on the fatally injured AB returned negative results for drugs and alcohol. The safety investigation, therefore, did not consider the consumption of drugs and / or alcohol to be a contributing factor to this accident.

As the truck driver went missing after the accident, fatigue of the truck driver and the consumption of drugs and / or alcohol by him could not be ascertained.

CONCLUSIONS

1. The AB was trapped between the shore crane and an open trailer truck, which was delivering cargo to the vessel.
2. It was possible that the truck driver was not acclimatised in his role with this shore company.
3. Evidence suggested that the truck was stationary, and its cargo had been tallied by the fatally injured AB prior to the accident.
4. The truck's brake mechanism and tyres were found to be in good condition, and the ground surface was dry.
5. The accident site was lit, and the reflective tapes of the fatally injured AB's coveralls were found to be effective.
6. In all probability, the hand brake mechanism had not been applied when the truck arrived at its designated position to unload the cargo.
7. Impacts of the cargo against the forward section of the truck may have caused the truck to roll forward if the truck's hand brake was not engaged.
8. It is highly probable that the driver did not anticipate that his truck could move from its stationary position.
9. In all probability, neither the truck driver nor other port personnel were aware of the position of the AB, and hence he could not be cautioned of the hazard.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION[7]

Following the accident, Platin Shipping and Trading Co. Ltd. instructed the crew members, across its fleet, on the following:

1. Personnel safety on the pier;
2. Whenever possible, cargo should be tallied from the vessel's deck.
3. In cases where tallying of the cargo needs to be carried out from the pier, adequately lit locations should be identified, as far away as possible from trucks and port machinery.
4. Access to the pier should be avoided during cargo operations, unless necessary.
5. Protective clothing and high-visibility vests shall be worn.

In addition to the above, the Company will be contracting shore companies to tally cargo, whenever possible and available.

RECOMMENDATIONS

Taking into consideration the safety actions taken by the Company, no safety recommendations have been issued.

[7] **Safety actions shall not create a presumption of blame and / or liability**.

SHIP PARTICULARS

Vessel Name:	*Rimona*
Flag:	Malta
Classification Society:	Registro Italiano Navale
IMO Number:	9468750
Type:	Bulk Carrier
Registered Owner:	Rimona Shipping Ltd.
Managers:	Platin Shipping and Trading Co. Ltd., Turkey
Construction:	Steel
Length Overall:	119.95 m
Registered Length:	112.99 m
Gross Tonnage:	5,222
Minimum Safe Manning:	12
Authorised Cargo:	Dry cargo in bulk

VOYAGE PARTICULARS

Port of Departure:	Habas, Turkey
Port of Arrival:	Haifa, Israel
Type of Voyage:	International
Cargo Information:	Steel products
Manning:	14

MARINE OCCURRENCE INFORMATION

Date and Time:	09 September 2020 at 2120 (LT)
Classification of Occurrence:	Very Serious Marine Casualty
Location of Occurrence:	Habas, Turkey
Place on Board	*Not applicable*
Injuries / Fatalities:	One fatality
Damage / Environmental Impact:	None
Ship Operation:	Alongside moored; Loading cargo
Voyage Segment:	Alongside
External & Internal Environment:	Clear weather with a visibility of about 10 nm; Northwesterly fresh breeze; moderate sea with a 0.5 m high, Northwesterly swell. Air and sea temperatures: 26 °C.
Persons on board:	14