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REPORT S 1997:3e

Grounding of the dry-cargo vessel MV Tina on 1 December 1996 at Köttstycket, O county, Sweden

S-08/96

Statens haverikommission (SHK) Board of Accident Investigation

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National Maritime Administration
601 78 NORRKÖPING

Report S 1997:3e

The Board of Accident Investigation (SHK) has investigated a grounding that occurred on 1 December 1996 at Köttstycket, O county, Sweden, involving the Dutch dry-cargo vessel MV Tina.

In accordance with section 14 of the Ordinance on the Investigation of Accidents (1990:717) the Board herewith submits a report of the investigation.

S-E Sigfridsson

Hans Rosengren Per Lindemalm

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Vessel:		Motor vessel Tina, dry-cargo vessel
Owner/operator:		Scheepvaartonderneming Tina C.V. P.O.Box 54, NL-8440 AB Heereenveen
Date:		01-12-96, 21.43 hrs (in darkness) (NB: All times given in Swedish Normal Time (SNT) = UTC + 1 hr)
Location:		Köttstycket, O county, Sweden (N 57°38,35' E 11°36,95')
Weather:		According to SMHI, Vinga 22.00 hrs: wind SSE/15m/s, visibility 13 NM; wave height at Trubaduren 1.6 m (significant), 2.7 m (max)
Numbers on board:	*crew*	9
	passengers:	2
Injuries:		None
Damage to vessel:		Extensive damage to bottom
Other damage:		Minor release of heavy oil
Master's age, certification:		58 years, Dutch master's certificate

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The Board of Accident Investigation (SHK) was notified on 3 December 1996 that a dry-cargo vessel, MV Tina from Heerenveen, the Netherlands, had run aground at Köttstycket, O county, Sweden on 1 December 1996 at 21.43 hrs.

The accident has been investigated by the Board represented by S-E Sigfridsson, Chairman, Hans Rosengren, Chief Investigator Operations, and, from 1 April 1997, Per Lindemalm, Chief Technical Investigator.

The Board was up to 1 April 1997 assisted by Per Lindemalm as technical expert.

The investigation was followed by Sten Andersson on behalf of the Swedish Maritime Administration.

The sole purpose of the Board's investigations is to prevent future accidents and incidents.

SUMMARY

The vessel left Hamburg on 30 November 1996 for Gothenburg. The Gothenburg pilot came on board on 1 December at 21.30 hrs. The vessel was then on course for the Viten lighthouse just NE of Vinga. The pilot assumed control of the vessel's navigation. Pilot and master sat side-by-side at the control panel.

Navigation was visual, assisted by radar. One of the two radars was in use and the other was in stand-by mode.

The radar was initially set to a range of 3 NM. At a distance of some 1.5 NM from Viten the pilot switched the range to 1.5 NM. The radar picture then became unclear and the Viten and Köttstycket echoes were jammed out by sea clutter. When he looked up he saw that the vessel had entered the red sector of Viten. He observed the lights on Vinga northeastern point and the red buoy south-west of Limbåden on a bearing of about 90°. He formed the impression that the waypoint had been reached and altered course. Shortly after the course alteration the vessel ran aground.

The accident was caused by the pilot losing his radar references and misinterpreting his visual references in connection with the execution of a turn.

Contributory factors were that the range of the radar was altered shortly before the turning point and that resources available on the bridge were not used in an efficient manner.

Recommendation

The Board of Accident Investigation (SHK) recommends that the Swedish Maritime Administration consider the issue of navigational aids on Köttstycket.

1 FACTUAL INFORMATION

1.1 The Course of Events

The vessel left Hamburg in the afternoon of 30 November 1996 with a cargo of containers for Gothenbuirg. A pilot from Gothenburg came aboard on 1 December at 21.30 hrs at the Vinga Western Fairway Buoy. The vessel was then on a course for the Viten lighthouse, in the white sector of the light-house. Once on the bridge, the pilot assumed the conning of the vessel. During the subsequent course of events there were on the bridge – besides the pilot – the master, the chief mate and two persons who were not crew members but were doing work on board. The pilot and the master sat side-by-side at the controls.

Owing to the strong south-southeasterly wind and a strong current setting north, to maintain the intended true course of 110° the vessel had to steer a course of 125°. Speed was increased successively to about 11.5 knots.

Navigation was chiefly by radar. One of the two radars was in use and the other was in stand-by mode, according to the master to avoid interference between the radars.

The radar range was initially set to 3 NM. At a distance of about 1.5 NM from Viten the range was altered to 1.5 NM. The radar picture then became unclear and both Viten and Köttstycket became jammed out by sea clutter. When the pilot looked up he saw that the vessel had entered the red sector of Viten. He also observed lights on the north-eastern Vinga point and the red buoy south-west of Limbåden on a bearing of 90°. He formed the impression that the waypoint had been reached and altered course to 100°. The master realised that the turn was initiated too soon and tried to reverse the engines. The grounding occurred shortly after the change of course. The pilot has stated that his judgement of distance may have been affected by the container cargo on deck.

The accident occurred at position N 57°38,35' E 11°36,95'.

1.2 Injuries

	Crew	Passengers	Others	Total
Killed	–	–	–	–
Seriously injured	–	–	–	–
Slightly injured	–	–	–	–
No injuries	7	2	–	9
Total	7	2	–	9

1.3 Damage to the Vessel

The vessel suffered considerable hull damage under the waterline. Some tanks were also penetrated with subsequent leakage. The plating was damaged from the keel strake under the bulbous bow along both sides of the bottom. To starboard the damage extended aft to the forward engine room bulkhead. To port, the damage extended aft to about 18 m forward of this bulkhead.

1.4 Other Damage

No other damage has been reported.

1.5 The Crew

The master was 58 years at the time of the accident and held Dutch master's certificate for vessels of net registered tonnage under 4 000. He had been master of the vessel for six months, having earlier served on a sister ship. He had been master of various ships since 1962. The chief mate was 30 years and held a Dutch chief mate's certificate for vessels of net registered tonnage under 6 000. The pilot was 47 years and held Swedish master's certificate. He has served as a pilot in Gothenburg since 1990.

1.6 The Vessel

The MV Tina is a modern general-cargo vessel with the following particulars:

Owner/operator:	Scheepvaartonderneming Tina C.V., P.O.Box 54, NL-8440 Heerenveen
Year of construction:	1985
Yard:	J.J.Sietas, Hamburg
Tonnage:	3 727 gross, 1 806 net
Carrying capacity:	4 186 tons
Length overall:	103.5 m
Beam:	16.0 m
Draught, summer:	5.65 m
Propulsion effect:	1 070 kW
Speed in trials:	approx. 14.5 knots

The vessel has one cargo hold without 'tween decks and the engine room and bridge are aft. She has no cranes or derricks for cargo handling. The hold and weather deck are arranged for stowage of containers. Containers can be carried on the hatches stowed in up to three layers.

1.7 Meteorological information

According to information from SMHI the wind at Vinga on 1 December 1996 at 22.00 hrs was south-southeasterly, speed 15 m/s. Visibility at Vinga at this time was 13 NM. Significant wave height at Trubaduren was 1.6 m, maximum wave height 2.7 m.

1.8 Navigational aids

The vessel has a complete set of modern navigational aids that comply with international regulations. Among these are an autopilot, two Kelvin Hughes model 1610/6 radars and a GPS navigator.

1.9 Radio communication

Nothing out of the ordinary between the vessel and the pilot station before the pilot came aboard.

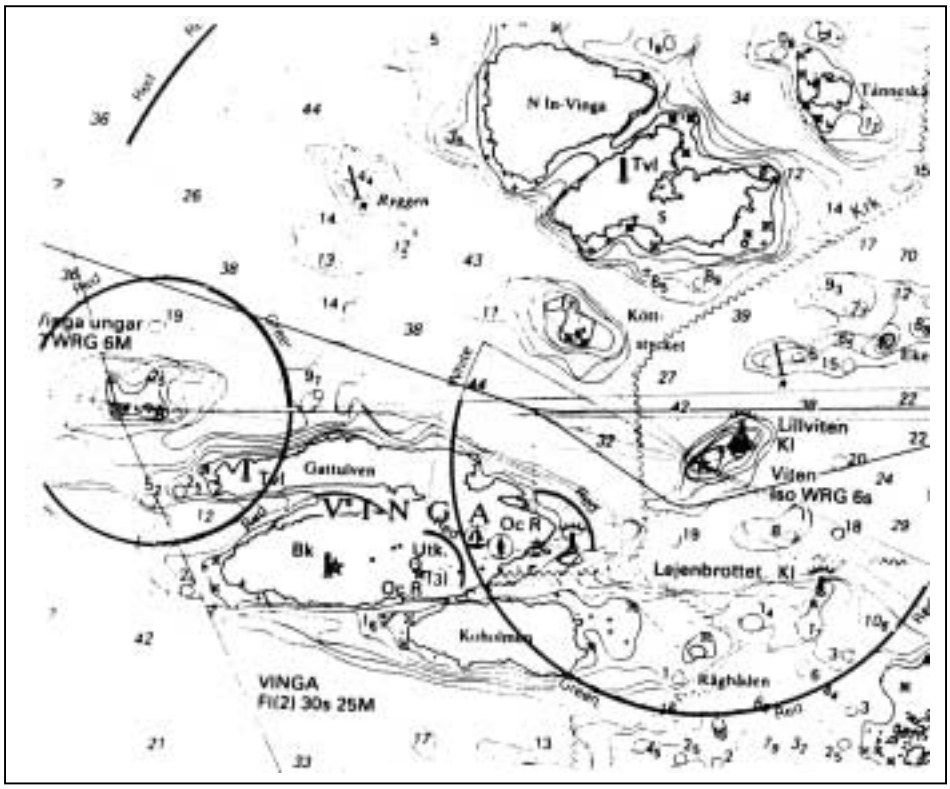
1.10 Speed and sound recorder

Not carried. Not required.

1.11 Location of the accident and the vessel

1.11.1 *The site of the accident*

The fairway runs from Vinga Western Fairway Buoy in an approximately eastsouth-easterly direction to the Viten lighthouse. Directly west of Vinga north-eastern point, which is lighted, the fairway divides into two, one arm running almost easterly north of Lillviten and the other in a bend south of Viten. The two channels then rejoin about ½ NM west-southwest of Limbåden. The distance from the channel line to the boundary between the white and red sectors of Viten where the channel divides is about 200 m. The distance from the same sector boundary to Köttstycket is also about 200 m (see section of sea chart 9313 below).



1.11.2 *The vessel*

On departure from the port of loading the vessel had a draught of 3.9 m forward and 5 m aft. She had 1 284 tons of cargo in the form of containers in the hold and on deck. On deck the containers were stowed in two layers, which allowed approx. 4.5 m free visibility over the cargo. In addition, the vessel carried ballast in the fore peak and in the forward deep tank.

1.12 Medical information

Nothing has emerged to indicate that the crew's or the pilot's mental or physical condition was impaired prior to the accident

1.13 Fire

Fire did not break out.

1.14 Survival aspects

Not applicable.

1.15 Organisation and management of company

Not applicable.

2 ANALYSIS

As the vessel approached Viten the radar was set to a range of 3 NM. The picture then showed both Viten and Köttstycket clearly. Since a small turn was to be made at a point roughly abeam Vinga north-eastern point, the pilot switched the radar over to a range of 1.5 NM. The radar picture immediately became unclear. The reason was that it then contained echoes from the relatively high seas in the area. This caused some uncertainty as to the distance to the waypoint.

The visual references – the lighting on the Vinga north-eastern point and the buoy south-west of Limbåden – were interpreted by the pilot to mean that they had reached the waypoint. He therefore initiated the intended turn. The vessel was however just west of Köttstycket. Because of the short distance to Köttstycket, a grounding could not be avoided.

In the Board's opinion the course of events shows that there is reason to consider improving the visibility of Köttstycket with, for example, a radar reflector and/or visual aids.

The heavy grounding and subsequent movements of the vessel on the ground caused extensive damage to the bottom of her hull. Her hold, however, was protected by the side tanks and bottom tanks. Since the inner plating and tank top remained intact, no water penetrated the hold.

In summary, the pilot lost his orientation when he switched the range of the radar being used. Interference from the sea caused echoes from Viten and Köttstycket to be jammed out by sea clutter when the new picture appeared on the radar screen. This leads the Board to draw attention to the risk of switching ranges in such narrow channels and similar situations. The pilot also misinterpreted the visual references available to him in the form of the Vinga lights and the Limbåden buoy.

The vessel was conned essentially by the pilot alone, while the ship's officers appear to have “followed the navigation”. In this connection it is worth mentioning that a worked-out and clearly expressed distribution of labour on the bridge, according to the pilot – copilot method would have created better conditions for handling the somewhat difficult situation of a

relatively narrow channel and small margins for commencing the turn at the right moment. Among other things, it would have been possible to use both radars at the same time but with different ranges. The resources available on the bridge – three experienced mariners – cannot be considered to have been used in an effective manner.

In general, this event highlights general issues of cooperation that sometimes arise during piloting. These - which have been studied in detail in various contexts – are often rooted in diverging views of the pilot's and the master's tasks during piloting. The Board is well aware that various joint training schemes are in progress for pilots and ships' officers. Such joint training is clearly valuable and deserves to be encouraged. In such connections great attention should also be paid to the mutual briefing between master and pilot when the latter comes on board regarding how the passage is to be conducted and how work tasks are to be apportioned among the various officers.

3 CONCLUSIONS

3.1 Investigation results

a) The crew and the pilot were duly authorised.
b) The vessel was seaworthy.
c) At the time a strong current and a strong wind affected the vessel in the same direction abeam ship.
d) One of the two radars was in operation.
e) Shortly before the accident the range of the radar was switched from 3 NM to 1.5 NM.
f) The radar picture became unclear when the range was switched.
g) The pilot misjudged his visual references.
h) The master attempted to stop the vessel.
i) The vessel ran aground on Köttstycket.

3.2 Causes of the accident

The accident was caused by the pilot losing his radar references and misinterpreting his visual references in connection with the execution of a turn. Contributory factors were that the range of the radar was altered shortly before the turning point and that resources available on the bridge were not used in an efficient manner.

4 RECOMMENDATIONS

The Board of Accident Investigation (SHK) recommends that the Swedish Maritime Administration consider the issue of navigational aids on Köttstycket.