

**NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Vehicle Recorder Division
Washington, D.C. 20594**



SPECIALIST'S FACTUAL REPORT OF INVESTIGATION

DCA19FM048

**By
Nick Swann**

WARNING

The reader of this report is cautioned that the summary of a voyage data recorder audio recording is not a precise science but is the best product possible from an NTSB investigative effort. The summary or parts thereof, if taken out of context, could be misleading. The summary should be viewed as an accident investigation tool to be used in conjunction with other evidence gathered during the investigation. Conclusions or interpretations should not be made using the summary as the sole source of information.

NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division

July 29, 2021

Voyage Data Recorder

Specialist's Factual Report
By Nick Swann

1. EVENT SUMMARY

Location: Jekyll Island, GA
Date: June 8, 2019
Vessel: Ro-Ro, Golden Ray, IMO 9775816
NTSB Number: DCA19FM048

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received data from the following VDR:

Recorder Manufacturer/Model: **Totem Plus**
Recorder Serial Number: **N/A**

3.1 VDR Carriage Requirements

The event vessel, IMO 9775816, was launched in 2016 and was operating such that it was required to be equipped with a VDR, as cited under IMO Resolution MSC.333(90).

3.2 Totem Plus VDR Description

The Totem Plus is a VDR system capable of recording navigation, propulsion, control surface, alarm, and automatic identification system (AIS) data. Additionally, bridge audio and communications audio channels are recorded by the system. A minimum of 30 days of data are recorded by the system.

3.3 Audio Recording Description

Approximately 4 hours of fair quality audio (see Attachment 1) was extracted from the VDR, including the period surrounding the event. The timing of the VDR data is synchronized to GPS time and is recorded as Universal Time Coordinate (UTC). All times in this report are given as UTC.

The audio extracted was summarized from 04:40 until 05:45. The accident occurs at approximately 05:37.

3.4 Totem Plus VDR Time Correlation

The audio filenames on the Totem Plus include an encoded UTC time stamp of when each file began recording. These time stamps were used to correlate elapsed recording time to UTC.

3.5 Recorded Audio Summary

In agreement with the Investigator-In-Charge, a VDR group did not convene. A summary of events from the VDR follows.

At 04:40, the pilot was heard asking the captain what the deep draft of the vessel was. The captain responded that it was 9.45 m.

The pilot then stated that that was “almost the same as comin’ in.”

Shortly after, at 04:45, the crew started releasing the lines on the vessel.

The pilot gave his first engine command of dead slow astern at 04:52.

The pilot continued to give engine and rudder commands as well as several orders to the tugs. At roughly 04:59, the pilot informed the captain they are clear of the berth.

At 05:00, the crew asked the pilot if he’d like the pilot ladder to be set up on the port side. The pilot responded yes.

At 05:02, the pilot gave a full ahead bell order, increasing the engine RPM from half ahead.

From that time until approximately 05:33, the pilot gave several rudder orders and heading orders to guide the ship out of Brunswick. For each order, the helmsman acknowledged the order and then alerted the pilot when the rudder had reached its desired position. The pilot would then acknowledge the helmsman’s response.

At 05:34:53, the pilot ordered a heading of 044; the helmsman acknowledged.

At 05:36:07, the pilot gave a rudder order of starboard 10; the helmsman acknowledged.

At 05:36:37, the pilot gave a rudder order of starboard 20; the helmsman acknowledged.

At 05:36:43, the pilot gave a rudder order of midship; the helmsman acknowledged.

At 05:36:57, someone on the bridge could be heard saying “woah.”

Two seconds later, at 05:36:59, the pilot asked, “what’s the GM on this thing?”

Someone on the bridge responded, “yeah.”

At 05:37:03, the pilot gave a rudder order of port 10.

5 seconds later at 05:37:08, the pilot asked, “captain what’s going on?”

At 05:37:10, someone who was not the pilot gave a rudder order of port 20.

At 05:37:12, the pilot gave an order of midship.

At 05:37:19, many port 20 calls were heard on the bridge made by various people.

At this point in time there was also a lot of commotion on the bridge. The microphones captured noises of crashing objects as well as groans and sounds of exertion from crew members on the bridge. After the commotion, several alarms started to sound.

At 05:38:04, the pilot was heard saying on the radio, “we’re on our side over here.”

At 05:39:31, the pilot asked the captain what the angle of heel was. The captain responded with 60 degrees.

At 05:39:48 a very loud alarm started sounding on the bridge. This alarm continued for approximately 5 minutes.

At 05:42:56 the pilot was heard asking the captain if all of the watertight doors were secured. The captain responded that they were. The pilot then asked again if all the watertight compartments were secured, and the captain responded affirmatively.

Attachment I

VDR Quality Rating Scale

The levels of recording quality are characterized by the following traits of the voyage data recorder audio information:

| | |
|--------------------------|--|
| Excellent Quality | Virtually all of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate only one or two words that were not intelligible. Any loss in the transcript is usually attributed to simultaneous bridge/radio transmissions that obscure each other. |
| Good Quality | Most of the crew conversations could be accurately and easily understood. The transcript that was developed may indicate several words or phrases that were not intelligible. Any loss in the transcript can be attributed to minor technical deficiencies or momentary dropouts in the recording system or to a large number of simultaneous bridge/radio transmissions that obscure each other. |
| Fair Quality | The majority of the crew conversations were intelligible. The transcript that was developed may indicate passages where conversations were unintelligible or fragmented. This type of recording is usually caused by bridge noise that obscures portions of the voice signals or by a minor electrical or mechanical failure of the VDR system that distorts or obscures the audio information. |
| Poor Quality | Extraordinary means had to be used to make some of the crew conversations intelligible. The transcript that was developed may indicate fragmented phrases and conversations and may indicate extensive passages where conversations were missing or unintelligible. This type of recording is usually caused by a combination of a high bridge noise level with a low voice signal (poor signal-to-noise ratio) or by a mechanical or electrical failure of the VDR system that severely distorts or obscures the audio information. |
| Unusable | Crew conversations may be discerned, but neither ordinary nor extraordinary means made it possible to develop a meaningful transcript of the conversations. This type of recording is usually caused by an almost total mechanical or electrical failure of the VDR system. |