FEBIMA

Vooruitgangstraat 56

B - 1210 Brussels

Belgium

Report 2020/006586

Report on the grounding of

fv Z.575 – HEIN SENIOR

on October 12th, 2020

Picture: L.Wouda, ST.27

off the isle of Vlieland,

with damage to the propeller.

Federal Bureau for the Investigation of Maritime Accidents

Extract from European Directive 2009/18

(26) Since the aim of the technical safety investigation is the prevention of marine casualties and incidents, the conclusions and the safety recommendations should in no circumstances determine liability or apportion blame.

In view of the COVID-19 pandemic in 2020, and local rules and regulations to prevent the further spread of the virus, the investigators of the Federal Bureau for the Investigation of Maritime Accidents adhered to all legislation in vigour, which might have hampered certain investigative acts. Nevertheless, no efforts were spared to conduct the investigation, into the cause of the marine accident mentioned in this report, to the largest possible extent and conclusions were only drawn after very large consideration.

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4 GLOSSARY OF ABBREVIATIONS AND ACRONYMS

'	Minute
°	Degree
Bft	Beaufort
BVBA	Besloten Vennootschap met Beperkte Aansprakelijkheid (Limited Company)
C	Celsius
Cm	Centimetre
E	East
ESE	East South-East
Etc.	Etcetera
Fv	Fishing Vessel
IMO	International Maritime Organization
kW	kilowatt
LAT	Lowest Astronomical Tide
LT	Local Time
m	Metres
m/s	Metres per Second
N	North
nm	nautical miles
NNW	North North-West
PS	Portside
RIB	Rigid Inflatable Boat
SB	Starboard
TC	Traffic Centre
UTC	Universal Time Coordinated
VHF	Very High Frequency
W	West

5 MARINE CASUALTY INFORMATION

5.1 RESUME

Throughout this report all times are in Central European Summertime which is UTC+2, unless specified.

On Monday October 12th, 2020 around 03:45 hours, Fv Z.575-HEIN SENIOR had a failure of the main engine when the vessel was sailing inside the Zuider Stortemelk fairway, near red buoy ZS8, north of the isle of Vlieland.
While the crew was trying to repair the engine and towing assistance was on its way, the vessel drifted southward, to the isle of Vlieland.
Fv Z.575-HEIN SENIOR grounded around 04:10 hours off the coast of Vlieland.
Fv Z.575-HEIN SENIOR came afloat again around 15:00 hours with tug assistance and sailed by her own means to the port of Harlingen.
The grounding caused some damage to the propeller of the fishing vessel. Nobody got injured during the incident.
A technical inspection in the port learned that the main engine failure was caused by an electronically controlled solenoid valve in the gear box.

5.2 CLASSIFICATION OF ACCIDENT

According to Resolution A.849(20) of the IMO Assembly of November 27th, 1997, Code for the investigation of Marine Casualties and Incidents, a *serious marine casualty* means a marine casualty involving a fire, explosion, grounding, contact, heavy weather damage, ice damage, hull cracking suspected hull defect, etc., resulting in:

- structural damage rendering the ship unseaworthy, such as penetration of the hull underwater, immobilization of main engines, extensive accommodation damage etc.;
- or pollution (regardless of quantity);
- and/or a breakdown necessitating towage or shore assistance.

According this definition, the accident was classified as a

SERIOUS MARINE CASUALTY

5.3 ACCIDENT DETAILS

Time and date	October 12th, 2020, 04:10 hours
Location	53° 18’ 4 N 005° 03’ 4 W North of the isle of Vlieland
Persons on board fv Z.575-HEIN SENIOR	4
Injured persons	0

6 SYNOPSYS

6.1 NARRATIVE

On Monday October 12th, 2020, around 01:00 hours, beam trawler fv Z.575- HEIN SENIOR left the port of Harlingen, the Netherlands.

At 03:47 hours fv Z.575-HEIN SENIOR hailed traffic centre Brandaris, TC Brandaris, on VHF channel 2 to report a failure of the vessel's main engine in the Zuider Stortemelk fairway, between red buoys ZS12 and ZS8, North of the isle of Vlieland.
No further assistance was required at that moment.

The crew started to repair the engine immediately after the failure.

There was a southerly current running of 0.8-0.9 m/s measured by current observation point Eemshaven. A 4 Bft NNW wind was blowing.

Waves were coming from NNW. The mean wave height was 2.10 m.

By the influence of the wind and the current, the vessel drifted ESE with a speed of approximately 1.2 knots, see Figure 1.

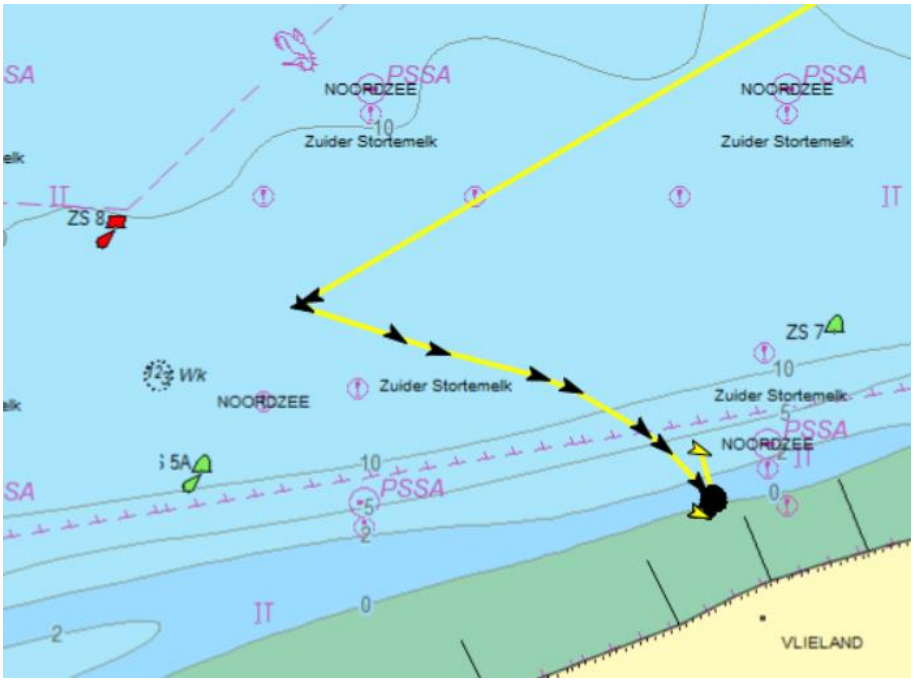


Figure 1 - Track of fv Z.575-HEIN SENIOR adrift

At 03:51 hours, fv Z.575-HEIN SENIOR hailed fv MDV1-IMMANUEL by VHF to require towing assistance, but fv MDV1-IMMANUEL was not able to meet this request.

At 03:56 hours, fv Z.575-HEIN SENIOR hailed TC Brandaris again on VHF channel 2 to require towing assistance, since the vessel was drifting towards the southern side, the green side, of the fairway with risk of grounding and no other fishing vessels were able to help.

TC Brandaris acknowledged the request and asked fv Z.574-HEIN SENIOR if it was possible to repeat the request for assistance on VHF channel 16 and to inform TC Brandaris with the outcome of the request.

Fv Z.575-HEIN SENIOR confirmed to hail for assistance on VHF channel 16.

RIB HURRICANE, a 5,2 tons bollard pull rigid inflatable boat of the towing and salvage company Noordgat, was located at the port of Terschelling and overheard the conversation between fv Z.575-HEIN SENIOR and TC Brandaris.[1]
RIB HURRICANE hailed TC Brandaris to inform that they could render assistance to fv Z.575-HEIN SENIOR.

At 03:57 hours, TC Brandaris acknowledged this request and informed RIB HURRICANE that fv Z.575-HEIN SENIOR was positioned on the green side of the fairway between buoys ZS5A and ZS7.

At 03:57 hours, RIB HURRICANE hailed fv Z.575-HEIN SENIOR to offer assistance. Fv Z.575-HEIN SENIOR accepted the proposal.

Meanwhile, the vessel was drifting out of the fairway, where the depth decreased from 10m to 0m over a distance of less than 0.15 nm, as indicated in Figure 2.

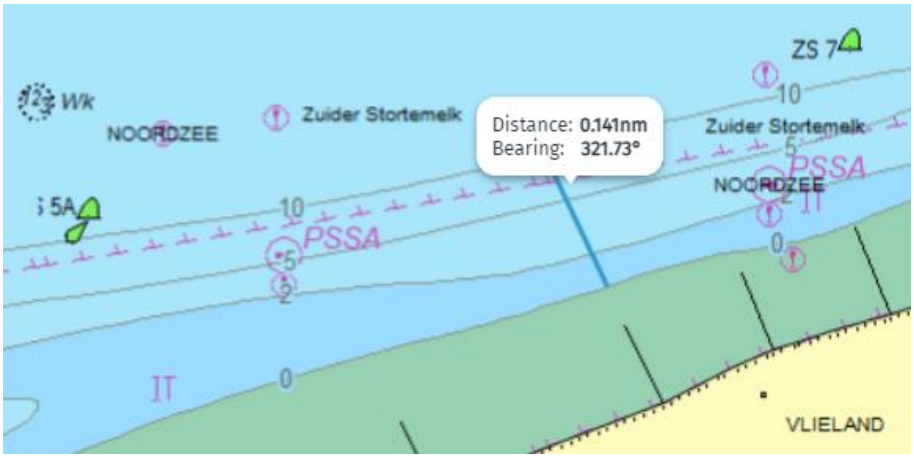


Figure 2 – Shallow water between the fairway and the isle of Vlieland

[1] Data sheet of RIB HURRICANE is attached in Annex 1

On October 12th, high water in Vlieland port was predicted at 04:18 hours according to the tide tables. The measured tide level between 04:00 hours and 04:30 hours was 2,23 m LAT.

Fv Z.575-HEIN SENIOR had a maximum draught of 2,4 m.

The SOG of fv Z.575-HEIN SENIOR was 1 to 1.2 knots.

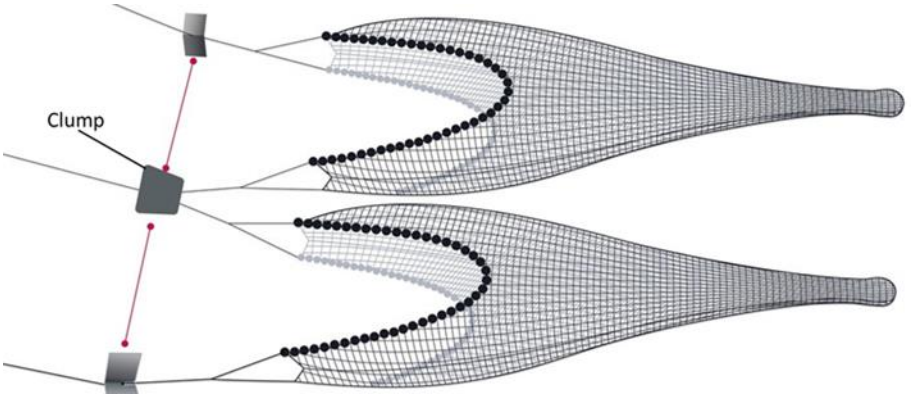
At 03:58 hours fv UK19-MARJA NETTY hailed fv Z.575-HEIN SENIOR to offer assistance. Fv Z.575-HEIN SENIOR prepared a towing rope in case fv UK19-MARJA NETTY would come alongside.

At 04:03 hours , fv UK19-MARJA NETTY hailed TC Brandaris to inform that they were not able to assist fv Z.575-HEIN SENIOR as the vessel was drifting too fast.

Fv Z.575-HEIN SENIOR tried to slow down the drifting speed by dropping the clump, see Figure 3. [2]

The anchor had not been used.

[2] The clump or centre weight is a part of the fishing gear that connects two warps in a twin rig configuration. The clump is positioned at the stern.



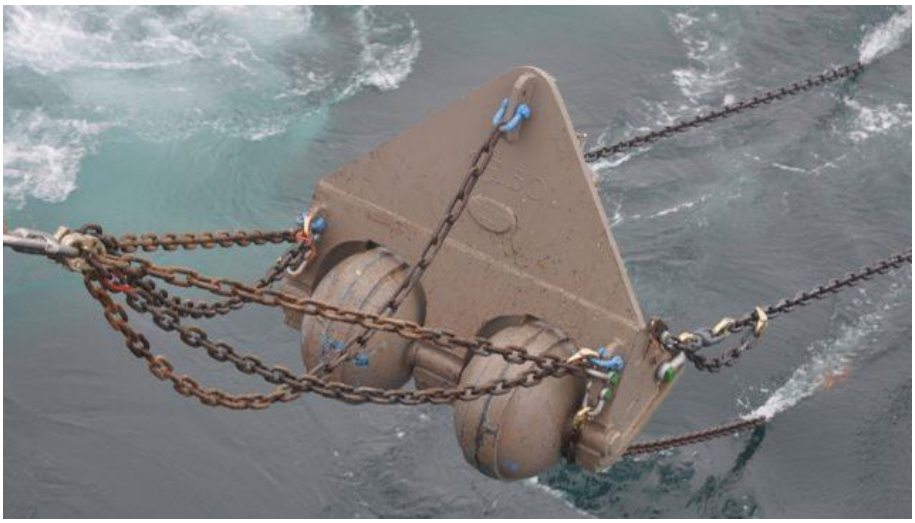


Figure 3 –Example of a clump

This picture does not show the clump on board Z.575-HEIN SENIOR.

At 04:09 hours, fv Z.575-HEIN SENIOR reported that they ran aground.

The charted depth in that area was between 0 and 2m.

At 04:14 hours RIB HURRICANE arrived at the grounded fv Z.575-HEIN SENIOR.

At 04:15 hours RIB HURRICANE made fast at the bow and started pulling at 04:19 hours.

During this attempt, the towing rope broke, but fv Z.575-HEIN SENIOR had not moved.

At 04:22 hours, RIB HURRICANE made fast at the stern. At 04:26 hours, the rope between both vessels broke again. After making fast again, the pulling at the stern continued.

At 04:36 hours fv Z.575 HEIN SENIOR reported a very slow movement of the vessel while RIB HURRICANE was pulling

At 04:41 no further movement was reported.

At 04:44 hours RIB HURRICANE hailed TC Brandaris to ask the time of HW. TC Brandaris informed that HW had taken place at 04:10 hours.

Figure 4 - Fv Z.575-HEIN SENIOR grounded

Picture: @emmavlie

At 04:51 hours, fv Z.575-HEIN SENIOR inquired whether a second vessel was available for assistance. According to the crew of RIB HURRICANE it would probably take too long to start up a second vessel. Tide was falling slowly already, as indicated in Figure 5.

Date	*Time*	*Location*	*Tide- cm*	
12/10/2020	7:00:00	Vlieland haven	171	
12/10/2020	6:50:00	Vlieland haven	176	
12/10/2020	6:40:00	Vlieland haven	181	
12/10/2020	6:30:00	Vlieland haven	186	
12/10/2020	6:20:00	Vlieland haven	191	
12/10/2020	6:10:00	Vlieland haven	196	
12/10/2020	6:00:00	Vlieland haven	200	
12/10/2020	5:50:00	Vlieland haven	204	
12/10/2020	5:40:00	Vlieland haven	208	
12/10/2020	5:30:00	Vlieland haven	212	
12/10/2020	5:20:00	Vlieland haven	214	
12/10/2020	5:10:00	Vlieland haven	217	
12/10/2020	5:00:00	Vlieland haven	219	
12/10/2020	4:50:00	Vlieland haven	221	Fv Z.575-HEIN SENIOR asked for a second boat to pull
12/10/2020	4:40:00	Vlieland haven	222	
12/10/2020	4:30:00	Vlieland haven	223	
12/10/2020	4:20:00	Vlieland haven	223	RIB HURRICANE started pulling at 04:19 hours
12/10/2020	4:10:00	Vlieland haven	223	Vessel reported to be aground at 04:09 hours
12/10/2020	4:00:00	Vlieland haven	223	
12/10/2020	3:50:00	Vlieland haven	222	

Figure 5 - Waterlevel Vlieland port (LAT)

At 04:56 hours, RIB SKUA, a 4,1 ton bollard pull rigid inflatable boat from Noordgat Towing and salvage company left the port of Terschelling, heading towards the grounded fishing vessel. 20 Minutes later, RIB SKUA arrived at the place of the incident.[3]

Between 04:44 hours and 05:16 hours, RIB HURRICANE continued her efforts to pull fv Z.575-HEIN SENIOR afloat, but to no avail.

At 05:24 hours both RIBs started pulling at the stern, but they could not get the fishing vessel afloat. Around 06:20 hours further attempts were halted until next high tide.

[3] Data sheet of RIB HURRICANE is attached in Annex 2.

Figure 6 – Grounded fv Z.575-HEIN SENIOR with RIBs SKUA and HURRICANE

Picture: KustnieuwsNL

At 09:58 hours, tug Hunter, a 40 ton bollard pull tug boat of Noordgat Salvage and towage company, arrived to give towing assistance. [4]

Figure 7 - Fv Z.575-HEIN SENIOR with tug HUNTER

Picture: twitter/@emmavlie

Low tide was at 10:45 hours on October 12th 2020. When the tide was rising again and with the assistance of tug HURRICANE, fv Z.575-HEIN SENIOR was pulled afloat around 15:00 hours.

Meanwhile, the main engine was working again.

[4] Data sheet of RIB HURRICANE is attached in Annex 3.

Fv Z.575-HEIN SENIOR returned to the port of Harlingen, by her own means, where she arrived at 17:45 hours.

The next day, on October 13th 2020, a service engineer boarded the vessel to perform a boroscopic inspection of the gear box valves.

Corrosion to the solenoid connector of the forward clutch valve inside the gear box was detected and oil was found between the spool and the manual control of the solenoid valve.

7 FACTUAL INFORMATION

7.1 VESSEL'S PARTICULARS

Figure 8 - Fv Z.575-HEIN SENIOR

Type	Beam trawler
Flag	Belgium
Port of registry	Zeebrugge
Call Sign	OPWS
IMO N°	9092642
Shipyard	VD Werff & Visser
Built	2000
Current owner	BVBA Rederij De Toekomst
LOA	23,99m
Breadth	6,26m
Gross tonnage	102
Net tonnage	30
Main Engine Type	Diesel
Main Engine Maker	Caterpillar
Engine power	221 kW

8 DAMAGES

No damages to the hull or keel were detected.

The propeller blades were damaged and a new propeller was installed. The propeller shaft and rudder stock were not affected by the grounding.

Figure 9 - Propeller of fv Z.575-HEIN SENIOR being replaced

9 ANALYSIS

9.1 EMERGENCY RESPONSE

Fv Z.575-HEIN SENIOR reported a main engine failure at 03:47 hours. At 04:09 hours, she reported grounding.

During this time interval, the crew was focussed on repairing the main engine and planned to make a towing connection with another ship to keep clear from the shore of the isle of Vlieland.

The crew was aware that the vessel was drifting southwards towards the shore of the isle of Vlieland.

The clump was thrown overboard to slow down the drifting speed.

Since there was no ship able to make a towing connection nearby, Fv Z.575-HEIN SENIOR had to wait until RIB HURRICANE arrived from the port of Terschelling, some 20 minutes away.

The anchor, located on PS bow, seen in Figure 10, was not used.

Figure 10 - Bow of fv Z.575-HEIN SENIOR

During an inspection of the Belgian Maritime Authority the day after the grounding, the anchor turned out to be stuck inside the hawse pipe and consequentially could not be lowered.

PREVIS, the organization for the Prevention of Occupational Accidents on board Fishing Vessels flying Belgian flag, published a safety handbook with safety instruction cards for fishermen. Safety instruction card A29, see Annex 4, handles the risks of grounding and mentions the use of the anchor to prevent grounding.

No procedures or instructions on board existed for the regular testing of the anchor and/or emergency drills in case of grounding.

10 CAUSE OF THE ACCIDENT

A failure of a solenoid valve in the gear box caused the breaking down of the vessel's main engine. Consequently the fv Z.575-HEIN SENIOR started drifting towards shallow waters. Since the emergency response did not include the dropping of the anchor and since no vessel in the vicinity was able to make a towing connection, fv Z.575-HEIN SENIOR ran aground.

11 SAFETY ISSUES

The emergency response on board, after the break down of the main engine, while the vessel was adrift, was focussed on the repair of the main engine and the establishment of a towing connection with another fishing vessel.

The dropping of the anchor was not considered.

An inspection the day after the incident learned that the anchor was stuck in the hawse pipe.

A set of safety instruction cards, issued by PREVIS, was available on board. The safety instruction cards handle a lot of dangerous situations on board fishing vessels in general and are not vessel specific.

The safety instruction cards give advice to shipowners, but they do not guarantee the implementation safety procedures, instructions, or regular inspections on board.

No emergency response procedure or instruction to prevent grounding in shallow water was in place and emergency response drills were not organised on board.

12 RECOMMENDATIONS

12.1 HISTORY

A ship specific safety management system contains i.a. emergency response procedures and preventive maintenance plans for critical equipment.

In case of loss of propulsion and involuntarily drifting towards shallow waters, the dropping of the anchor would be part of the emergency response procedure.

The anchor would be considered as critical equipment.

In recent investigations, FEBIMA already recommended to develop a safety management system on board fishing vessels:

1 Report on the investigation into the capsizing of fv Z.19-SONJA on August 25th, 2018 with the decease of two crew members

This investigation concluded that the crewmembers on deck were not wearing a lifejacket despite a large campaign of the Sea Fishery Fund and PREVIS in 2016. Z.19-SONJA was equipped with comfortable lifejackets with an integrated MOB device.

To improve the safety culture in the fishing industry, FEBIMA issued following recommendation on January 5th, 2021:

2018/001228-3 :

The Belgian Maritime Inspectorate is recommended to Commit control over safety management on board fishing vessels as well as ashore. Safety campaigns and initiatives deem not to be sustainable over the longer term. The introduction of a fishing safety management code in compliance with ILO188 will improve the safety culture in the fishing industry.

2 Report on the investigation into a fatal accident on board fv Z.15 – ZILVERMEEUW on November 11th, 2019

This investigation concluded that both the access to the moored vessel as the emergency response to rescue a man overboard indicated that there was a higher need for vessel specific safety assessment, training and follow-up of implementation of procedures and instructions.

FEBIMA issued following recommendation on May 7th, 2020:

2019/008718-3

PREVIS is recommended to develop a vessel safety management system for all Belgian fishing vessels together with other parties involved.

Both PREVIS and the Belgian Maritime Inspectorate are still deploying actions in relation to the above mentioned recommendations.

Therefore, no new recommendations towards PREVIS and the Belgian Maritime Inspectorate are issued, but the above mentioned recommendations are taken over in this investigation report.

12.2 RECOMMENDATIONS

12.2.1 THE OWNER OF THE VESSEL

2020/006586 -1 :The owner of the vessel, BVBA Rederij De Toekomst, is recommended to install a ship specific emergency response plan on board that includes the use of the safety equipment on board.
To ensure that all critical safety equipment is functional, a maintenance program for such equipment should be developed.

12.2.2 PREVIS

2019/008718-3 : PREVIS is recommended to develop a vessel safety management system for all Belgian fishing vessels together with other parties involved.

12.2.3 THE BELGIAN MARITIME INSPECTORATE

2018/001228-3 ***:*** The Belgian Maritime Inspectorate is recommended to commit control over safety management on board fishing vessels as well as ashore. Safety campaigns and initiatives deem not to be sustainable over the longer term. The introduction of a fishing safety management code in compliance with ILO188 will improve the safety culture in the fishing industry.

13 ANNEXES

RIB HURRICANE — HP5445

Name — Call sign

Length	17.25 m
Breadth	5.85 m
Draught	0.95 m
Bollard Pull	5.2 tons
Engine Power	2x 1500 hp MTU 10v2000 M93 & 2x Rolls-Royce FF500 Waterjets
Speed	± 45 knots
Cruising speed	± 30 knots
Class notation	Lloyds Register 100 A1 SSC Workboat Mono HSC G3
Bunker capacity	9000 litres
Radius of action	900 NM at 30 knots
Facilities	Fixed 200 hp fire fighting pumps (13 bar) with wheelhouse mounted monitor 260m3/hr Mobile salvage pumps Pushbow fitted

TOWING & SALVAGE NOORDGAT

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website www.noordgat.nl

Annex 1 – Data sheet RIB HURRICANE

RIB **SKUA** **PCNW**

Name Call sign

Length o.a.	14,66 m
Length l.l.	11,98 m
Breadth o.a.	4,98 m
Draught	0,85 m
Bollard Pull	4,1 tons
Engine Power	2x 1.000hp Volvo Penta D-13 / Rolls Royce S36-3/CA
Cruisingspeed	30 knots
Speed max	50 knots
Class notation	Register Holland / A1 & A2 / 200 Nm from shore
Flag	Dutch
Bunker capacity	2x 1.500 ltr
Range	450 Nm at 30 kts

Safetype equipment	windfarm access bow fender ambulance / brancard system mobile salvage pumps towing lines

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Annex 2 - Data sheet RIB SKUA

TUG **HUNTER** **HP7517**

Name Call sign

Length	39.40 m
Breadth	9.50 m
Depth	4.40 m
Draught	3.50 m
Bollard Pull	40 tons
Engine Power	3,300 bhp
Speed	14 knots
Gross tonnage	373 tons
Class notation	LR + 100 A1 Tug / +LMC / UMS / Iceclass 2
Bunker capacity	130 m^3
Radius of action	10,000 NM at 10 knots
Accommodation	2x 1 and 4x 2 cabins
Facilities	Bowthruster 350 HP
	Pushbow fitted
	Towinghook 40 tons SWL
	Double drum 30 ton towing winch with breakhold 70 tons
	2 x 500 meter 44 mm steel towing line
	Rope recovery winch
	Hydraulic towing pins + stern roller
	Mobile fire fighting equipment
	Mobile salvage pumps
	Hydraulic knuckle crane 30 metertons (1 tons at 19m)

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Annex 3 - Data sheet TUG HUNTER

KAARTNUMMER	Stranding: Vrijwillig of onvrijwillig.	datum
A 29		29-06-2020

Vastlopen met het schip op een zandbank of op het strand kan iedereen overkomen.

Bij het uitvallen van de motor kan het vaartuig bij ongunstige wind en/of getij stranden. Je moet dit proberen te vermijden door ruimschoots van het strand of zandbanken te varen. Zodoende heb je bij motorpech of een obstructie in de schroef, nog de tijd om het anker te gebruiken.

Als je bij mooi weer vastloopt, moet onmiddellijk gereageerd worden door de motor te minderen en direct de schroef uit te schakelen. Probeer dan vervolgens voorzichtig achteruit te slaan om te zien of het schip niet van de zandbank glijdt. Komt het vaartuig niet los, wacht dan best tot het volgende hoog water alvorens het opnieuw te proberen. Als het dan niet lukt, zal je de hulp moeten inroepen van een sleepboot. Je mag ook niet vergeten dat zelfs bij mooi weer, de branding op het strand of op een zandbank zeer gevaarlijk kan zijn.

Ook kan het gebeuren dat we het schip vrijwillig laten stranden, dit om het zinkende vaartuig te redden. Dit kan voorvallen indien je niet snel genoeg het water uit het schip kan pompen. Bijvoorbeeld bij een lekkage veroorzaakt door aanvaring, of een afgebroken zeekraan of zeewaterleiding, enz.

DENK AAN JE VEILIGHEID:

- ✓ Na het vastlopen van het schip, begeeft de bemanning zich onmiddellijk naar de brug of de afgesproken verzamelplaats.
- ✓ Iedereen moet zijn reddingsvest aandoen.
- ✓ De kustwacht altijd verwittigen bij het vastlopen en hen op de hoogte houden over de verdere evolutie.
- ✓ Er moet steeds gecontroleerd worden op lekkages, zowel tijdens het vastzitten als na loskomen van het schip (schroefasdichting niet vergeten!).
- ✓ Eventueel wordt het vlot in gereedheid gebracht.
- ✓ Zorg dat de ankerwinch altijd vrij is en werkt.

Voor meer informatie: Previs +32 59 50 95 55 previs@zeevissersfonds.be © 1/1

Annex 4 - Safety Instruction Card A29

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