



Enhet
Polisregion Väst, Sjöpolis 1 Rgn Väst

Handläggare (Protokollförare)
Henrik Norlin

Undersökningsledare
James von Reis

Polisens diarienummer
5000-K809967-26

Tilläggsprotokoll

till 5000-K809967-26

Arkiv/Åkl. ex

Åklnr
AM-115845-26

Signerat av
Henrik Norlin

Signerat av TINGSRÄTT
2026-08-27 14:49

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AKTBIL: 35

Personer i ärendet

Förtursmål Nej	Beslag	Målsägande vill bli underrättad om tidpunkt för huvudförhandlingen Nej
Ersättningsyrkanden		Tolk krävs
Misstänkt (Efternamn och förnamn) Kudrin, Alexey		Personnummer 19790322-
Brott		Förhandsgodkännande enligt RB 48:10 Nej
Misstänkt har delgivits information om att förenklad delgivning kan komma att användas av polis och tingsrätt (skriftligt överlämnad vid ett personligt sammanträffande).		
Misstänkt har delgivits information om att tillgänglighetsdelgivning kan komma att användas av tingsrätt (skriftligt överlämnad vid ett personligt sammanträffande).		
Underrättad om slutförd förundersökning / utredning enligt RB 23:18a 2026-08-27, muntlig underrättelse		Yttrande senast (rådrum)
		Resultat av slutunderrättelse Har inte avhört
Försvare Tuula, Taavi, förordnad 2026-07-31		
Underrättad om slutförd förundersökning / utredning 2026-08-27, muntlig underrättelse		Yttrande senast (rådrum)
		Resultat av slutunderrättelse Har inte avhört
Misstänkt (Efternamn och förnamn) Hammarskär, Fredrik Karl		Personnummer 19840418-6010
Brott		Förhandsgodkännande enligt RB 48:10 Nej
Misstänkt har delgivits information om att förenklad delgivning kan komma att användas av polis och tingsrätt (skriftligt överlämnad vid ett personligt sammanträffande).		
Misstänkt har delgivits information om att tillgänglighetsdelgivning kan komma att användas av tingsrätt (skriftligt överlämnad vid ett personligt sammanträffande).		
Underrättad om slutförd förundersökning / utredning enligt RB 23:18a 2026-08-27, muntlig underrättelse		Yttrande senast (rådrum)
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Försvare Håkansson, Thomas, förordnad 2026-08-03		
Underrättad om slutförd förundersökning / utredning 2026-08-27, muntlig underrättelse		Yttrande senast (rådrum)
		Resultat av slutunderrättelse Har inte avhört

Notering

Tilläggsprotokoll 2

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Polisen

4

PM

Komplettering begärd av A Kudrin.

Signerad av

Signerad datum

Enhet

Polisregion Väst, Sjöpolis 1 Rgn Väst

Diariernr

5000-K809967-26

Uppgiftslämnare

Henrik Norlin

Datum

2026-08-27

Tid

11:36

Beslag verkställt

Nej

Material för analys

Nej

Mottaget

Mottaget datum

Tid

Sätt på vilket uppgift lämnats

Upprättad av

Henrik Norlin

Uppgiften avser

Uppgift

Den begäran som A Kudrin gjort om komplettering avseende fartygets prestanda har inhämtats från rederiets ägare Roald Misje. Biläggs detta PM.

/pinsp H Norlin

0	Issued For Approval	04/11/2023	HARIS	ADIKARI	THISARA	
REV.	DESCRIPTION	DATE	PREPARED	CHECKED	APPROVED	CLIENT APPROVED
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			SEA TRIAL PROTOCOL FINAL REPORT NC 0251, 0252, 0253 BULK CARRIER 89.95 m			
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ANNEX A

Record Sheets

1.	NC0251-STR-001	-	Speed Power Trial Log Sheet
2.	NC0251 -STR-002	-	Steering Trial Record Sheet
3.	NC0251 -STR-003	-	Engine Parameter Record Sheet
4.	NC0251 -STR-004	-	Shaft Bearing Temperature Record Sheet
5.	NC0251 -STR-005	-	FO Consumption Record Sheet
6.	NC0251 -STR-006	-	Inertia Test Record Sheet
7.	NC0251 -STR-007	-	Crash Astern Test Record Sheet
8.	NC0251 -STR-008	-	Turning Circle Test Record Sheet
9.	NC0251 -STR-009	-	Zigzag Maneuvering Trial Record Sheet
10.	NC0251 -STR-010	-	Endurance Test General Data
11.	NC0251 -STR-011	-	Thruster Trials Record Sheet
12.	NC0251 -STR-012	-	Pull-Out Trials Record Sheet
13.	NC0251 -STR-013	-	Man Overboard Trial Record sheet
14.	NC0251 -STR-014	-	Anchor Test Record sheet
15.	NC0251 -STR-015	-	Rescue Boat Operation Check Sheet
16.	NC0251 -STR-016	-	Combinator Mode Speed Test record sheet
17.	NC0251 -STR-017	-	Harmonic Measurement Record Sheet

ANNEX B

Load analysis (Conv_5892-85051-03 _ - Electrical Load Analysis-ACAPPF)

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References

1. Shipbuilding Specification – Rev 4.
2. ITTC Recommended Procedure and Guidelines 7.5-04-01-01.1
3. ITTC Recommended Procedure and Guidelines 7.5-04-02-01
4. DNV-RU-SHIP rules
5. IACS Unified Requirement M25
6. IACS Unified Requirement M51
7. IACS Unified Interpretation SC246
8. SOLAS CH II-1 : Part C : Regulation 28, Regulation 29
9. 5892-105-0141_A_EEDI Sea Trial Procedure – Wartsila


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1. PRINCIPAL PARTICULARS AND CAPACITIES (CONTRACTUAL)

Length Overall	89.95	m
Length between perpendiculars	84.83	m
Depth to 1 st deck	9.20/ 8.80/ 8.45	m
Breadth moulded	15.40	m
Freeboard Deck	8.45	m
Design Draft	6.30	m
Maximum operating draft	6.55	m
Hold Capacity (Approx.)	7000	m ³
Frame Spacing	0.7	m
GRT / Deadweight	5000	T

2. GENERAL NOTES

- Before the Sea Trials are undertaken as detailed in this document, the Basin Trials related to the mandatory equipment and systems required for sea trials are to be completed and recorded. Any basin trials those are to be conducted during and after sea trials are to be agreed with owners and class.
- Subsequent to above, the builder (CDPLC) may perform preliminary sea trials according to the OEMs' recommendation and builder's practices to check beforehand that all equipment on board are capable of running satisfactorily at official Sea trial. For the preliminary sea trials participation of owners and class surveyors is not sought.
- The official sea trials should be carried out by shipyard, in accordance with the contractual building specification and this plan; witnessed by Owner's Representatives, Classification Society Surveyors and Builder's Representatives. Where specific measurements are required to be taken by external agencies, prior consent of owners and Classification societies to be obtained as applicable. Shipyard reserve rights to carry onboard any other personnel deems necessary for successful conduction of sea trials.
- Sea trials will be carried out in the coastal Indian Ocean, western to Port of Colombo. The date and time will be determined according to the schedule of sea trials, which is to be submitted to the concerned parties prior to the trials. Weather conditions, Sea depth and the distance from coast is to be mutually agreed during the trials.
- Sea trials are to be conducted at the maximum practicable vessel loading condition unless otherwise mentioned under any trial in this document. The contractual and other regulatory requirements (EEDI) are to be derived by suitable corrections as necessary.


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- The builder shall observe the draft and loading of the vessel in the presence of the Owner's Representative and Class, prior to the trial. Draft is to be measured at bow, mid-ship and stern by reading the draft marks by eye measurement.
- Sea water density is to be measured before Speed/Power Trial in the presence of Class and owners.
- As a general observation, weather, sea and wind conditions to be recorded during the sea trial.
- During the trials power consuming machinery and equipment which are intended to operate in a normal voyage shall be running.
- Before the commencement of sea trials, compasses, navigation, radio equipment, anemometer system, speed log, draught measurement, water depth measuring system and propulsion controls shall be calibrated and ensure the functioning over the full operation range.
- Shipyard shall appoint authorized trial leader and will be notified to ship owner and class prior to commencing trials.
- The trials covered in this document shall be performed with a clean bottom in deep and calm waters with fine weather where wind and sea not exceeding Beaufort 5 and at builders' favorable trim conditions in the coastal waters of Sri Lanka. All fuel, water, crew etc. required for the sea trial shall be provided by the ship builder.

2.1. OBSERVATION OF ENVIRONMENT CONDITIONS.

- Wind: wind is measured by a wind indicator fitted onboard.
- Wave: wave height, wave period and wave direction are measured by visual observation.

2.2. MEASUREMENTS AND RECORDS

- Whenever multiple readings are taken by several individuals, coordination and synchronization are to be ensured to the maximum possible extent with the usual conditions onboard. Loud voice commands and hand signals under heavy noise conditions (eg: steering room) will be practiced.
 - Photographs, video recordings with time data of the instrumentation panels, GPS/Speed log etc... will be used for better recording to minimize human errors may happen while taking continuous measurements.

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- Log sheets and record sheets are in Annex A. Naming convention of Log/Record sheets is as follows
- NC025X-STR-YYY
 - X – 0, 1, 2, 3, 4 (Respective hull number)
 - Y – Serial number of log/record sheet under respective trial number


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3. SPEED/POWER TRIALS

3.1. GENERAL

- Primary purpose of the Speed trial is to determine ship performance in terms of speed, power and propeller revolutions under prescribed ship conditions and thereby verifying the satisfactory attainment of the contractual ship speed and power and to provide the ship's speed and power for the calculation of the Energy efficiency Design Index as required by IMO.
- Wherever not specifically defined in this procedure, "ITTC Recommended Procedures and Guideline" (7.5-04-01-01.1 rev 7) is to be referred as guideline. Final conclusion on any ambiguity or suggestions for alternative methodology to be used, shall be agreed by Owner's representative, Class surveyor and Shipyard prior to implementation.
- In case the trial conditions are (vessel draught, water depth, weather conditions) are deviating from prescribed contractual and EEDI conditions, corrections are to be made to derive the final power and the ship's speed.
- Document evidence for carrying out the following checks related to the CPP system during commissioning.
 - Zero pitch position
 - Zero pitch reading adjustment in the onboard measurement instruments used for the trials against the mechanical reading in the oil distribution box.
 - Onboard pitch measurement instrumentation adjusted to display the maximin ahead and astern pitch.
- Displacement for Speed/power trials
 - Speed power trials to be carried out in ballast draft as per model test.
 - The deviation of the actual displacement during the speed/power trials shall be within 2% of the displacement used during the model test for ballast draft condition.


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- The ship's draught at the perpendiculars, midship port and starboard are to be taken with eye measurement prior to Speed/ Power trials. Trim and the displacement are obtained immediately prior to the speed/power trial by averaging the ship draught mark readings. Displacement shall be derived from the Bonjean data using quadratic equations with hydrostatic data.

➤ Trim

- Trim shall be maintained within very narrow limits as the tank loading of the vessel permits.

➤ Hull and propeller

- The ship shall have clean hull and propeller. The dates of the last cleaning are to be presented in the trial report.

➤ Location Date and Time

Speed/Power trials shall be conducted un a location where the environmental conditions are expected to be constant and to have only the smallest possible impact on the vessel in order to avoid unexpected environmental effects during trials.

- Sea trials will be carried out in the coastal Indian Ocean, western to Port of Colombo.
- The date and time will be determined according to the schedule of sea trials, which is to be submitted to the participants prior to the trials. All parties shall agree on the weather condition of the particular trial date before set off for the trial. Daily weather forecast is to be studied.
- Sea depth at the location and the distance from coast is to be mutually agreed before commencing the trials

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3.2. PARAMETERS THAT SHALL BE RECORDED

Primary Parameters	Parameter	Read by
	Ship Track	DGPS
	Speed Over Ground	DGPS
	Shaft Power	Torsion meter
	Shaft RPM	Pick up, ship's rev counter.
	Propeller Pitch	Remote indicators
	Time	GPS time
	Water depth	Echo sounder / Nautical Charts
	Ship heading	Gyro compass or compass - DGPS
	Relative wind, speed and direction	Ship Anemometer
	Height, period and direction of wind waves and swell	Observation by ship's master/captain
Secondary Parameters	Parameter	Read by
	Sea water relative density	Hydrometer
	Sea water temperature	Electronic thermometer + immersion thermocouple.
	Air temperature	Thermometer / thermocouple
	Air Pressure	Barometer
	Draughts	Eye measurement
	Displacement	According to draught readings and water density.
	Elapsed time	Stopwatch
	Surface temperature	IR thermometer

Table 1

Note – The measuring equipment mentioned above are to be calibrated prior to the trial and shall not change the calibration settings during the progression of the trial.

- Following data (Table 2) shall be made available to Owner's representative and Class along with the speed/power trial records.


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Hull condition	
Last date of cleaning hull	
Hull appendages and Rudder	
Geometry	
Type	
Rate of Movement during speed trials	
Wind fetch	
Height of anemometer above water-line	
Transverse Projected area above the waterline including superstructures at trial draught	
Lateral projected area above the waterline including superstructures at trial draught	If Appendix F.3 of ITTC 7.5-04-01-01.1 rev 7 is applied
Propeller(s)	
Type (FPP/CPP)	
Pitch (FPP)	
Direction of rotation	
Number of blades	
Shaft(s)	
G modulus	
Diameter (inside)	
Diameter (outside)	

Table 2

3.3. CONDUCT OF TRIAL

Since the wave conditions are estimated by the eye estimation, the speed/power trials are to be conducted in daylight.

Trial Trajectory-

The speed/power trial runs need to be conducted over the same ground area. For each base course, each speed run will be commenced at the same place within reasonable deviation agreed by parties. Trial measurements are to be taken between the course of COMEX and FINEX. See Figure 1.

In each run, before approaching COMEX, the ship shall be sailed for 5 minutes to achieve steady state. During this approach run, the ship shall be kept on course with minimum rudder angle. Maximum amplitude of rudder angle shall not be more than five (5) degrees.

Manoeuvring between the two runs is to be performed according to similar method shown in the diagram below. The rudder angle used in this manoeuvring shall be such that ship's speed loss and time loss are minimized.

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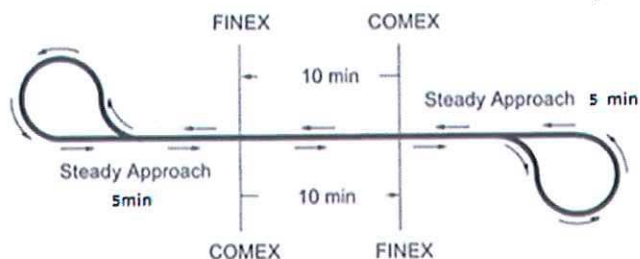


Figure 1

3.3.1. Trial Direction

The speed runs shall be carried out by heading into and following the dominant wave or wind direction, depending on which effects the ship's speed most.

3.3.2. Power settings and Number of runs

Speed/ power trials will be conducted in following power settings.

	POWER	Total Power, ME + PTI	NUMBER OF RUNS
1	800kW Lower power range	50% MCR + 0% PTI	One (01) double run
2	1040 kW Lower power range	65% MCR + 0% PTI	One (01) double run
3	1200kW Around EEDI power as calculated according to rules	75% MCR + 0% PTI	Two (02) Double runs
4	1600 kW Max Engine Power	100% MCR + 0% PTI	One (01) double run
5	2400 kW Max power & Contract power	100% MCR + 100% PTI	One (01) double run

3.3.3. Sister ships

Trials for sister ships are to be performed according to 8.8.3 in "ITTC Recommended Procedures and Guideline" (7.5-04-01-01.1 rev 7). Power settings and number of runs will be as follows.

	POWER		NUMBER OF RUNS
1	1040 kW Lower power range	65% MCR + 0% PTI	One (01) double run
2	1200kW Around EEDI power as calculated according to rules	75% MCR + 0% PTI	Two (02) Double runs
3	2400 kW Max power & Contract power	100% MCR + 100% PTI	One (01) double run


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3.4. TEST SEQUENCE

1. Select suitable location as described in 3.3
2. Fix the speed run heading as described in 3.3
3. Navigating through the approach distance on direct course for achieving steady state.
4. Standby for all measurements to start.
5. Start speed run and during the run
 - a. Control lever shall remain unchanged.
 - b. Maximum rudder angle shall not be more than 5 degrees either side.
 - c. Conduct steady run for 10 mins.
 - d. Take the required measurements and note the environmental observation.
 - e. Turn the ship as described in 3.3.
6. Repeat steps 3 to 5.

3.5. DATA COLLECTION

Record sheet NC025X-STR-001 in Annex A, to be used for the purpose of data collection.

3.6. RESULTS

3.6.1. Processing and reporting of Results

Corrections, Analysis, Processing and reporting of the results is to be done according to "ITTC Recommended Procedures and Guideline" (7.5-04-01-01.1).

3.7. FUEL OIL CONSUMPTION DURING SPEED TRIAL

Fuel oil consumption during each Speed trial to be measured by means of the flow meters fitted onboard.

- When the vessel reaches the COMEX of the trial route, initial readings of the main engine flowmeters are to be recorded.
- When the vessel reached the FINEX of the trial route, final reading of the flowmeters to be recorded.
- Take the difference between the initial and final reading of each flow meter.
- Deduct the return flowmeter value from that of the supply flowmeter to get the net FO consumption for that run.
- Consumption for each direction in a double run to be taken and averaged to find the final FO consumption value for particular speed trial.
- Perform the test for all the speed trials according to above steps.

Use record sheet NC025X-STR-005 to record and present results.


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4. MAIN AND EMERGENCY STEERING TEST

4.1. MAIN STEERING GEAR TEST.

The practical performance of steering gear of the vessel during ahead running together with the capability of putting the rudder over from 35° of one side to 30° on other side in not more than 28s shall be tested in the trial.

PROCEDURE

1. Running of the power units, including transfer between power units to be demonstrated.
2. Isolation of one hydraulic actuating system including checking the time for regaining steering capability to be performed. The applicability of this to be agreed with the attending officials at the time of trials.
3. The steering test should be carried out with the vessel running ahead at the speed corresponding to the number of maximum continuous RPM and maximum pitch of propeller. The ship should be ballasted for even keel condition with the rudders fully immersed in water.

4. Test Sequence

Neutral Steering	to	Hard Port
Hard Port	to	Hard Starboard
Hard Starboard	to	Neutral Steering
Neutral Steering	to	Hard Starboard
Hard Starboard	to	Hard Port
Hard Port	to	Neutral Steering

Rudder angle shall be taken as 35° for this test. This should be carried out with both motors as well as with single motor running.

OBSERVATIONS

- Time required for each turning
- Maximum rudder angle
- rpm of main engine
- Maximum heel angle (Measured by bridge inclinometer).
- Maximum pressure of the hydraulic power pack
- Maximum current of the electric motors


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4.2. EMERGENCY STEERING

Emergency steering will be carried out at a speed of 7 knots or one half (0.5 times) of the speed corresponding to the maximum RPM of Main Engine at Maximum Propeller pitch, whichever is greater to measure the time taken to turn the rudder from 15° - 15° by operating the backup system. This test shall be carried out with Emergency power from Emergency Switchboard. Time for above rudder actuation shall be not greater than 60s.

Loading condition- The ship should be ballasted for even keel condition with the rudders fully immersed in water.

5. INERTIA TEST

In this trial the ability of the machinery to reverse the direction of thrust of the propeller in sufficient time, and so to bring the ship to rest within a reasonable distance from maximum ahead service speed, shall be demonstrated and recorded.

PROCEDURE

With the vessel proceeding at full speed ahead at ballast draught, take the propeller pitch to zero. Using GPS, keep recording ship's position, course against time. Leave the vessel to run on its inertia until the speed ahead drops below 5 knots on GPS.

During the test;

- Propeller pitch shall not to be changed once set to zero.
- Rudder angle is to be at zero position at the moment of order given and no change of the rudder angle after order given.

OBSERVATIONS

- Time of the order.
- Ship headings and GPS locations.
- Rpm of the main engine during ahead run, just before the order to neutral engine.
- Approximate distance traveled by the vessel from the order.
- Depth of water at the trial area.
- Wind direction, velocity, weather and sea conditions.


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6. CRASH ASTERN TEST (STOPPING & ASTERN TRIAL)

In this trial the crash stop characteristics of the vessel, when the propellers are brought into full astern position while the vessel is running ahead at full speed shall be checked.

The test comprises with two parts as follows;.

Part 1- Full ahead to vessel speed zero

Part 2- Vessel speed zero to full astern speed.

Above two tests will be performed continuously in the order part1 and part 2.

Vessel loading condition – ballast loading with minimum trim and sufficient propeller immersion

PROCEDURE

PART 1

- When the vessel is proceeding at steady speed and course at 100% MCR of main engine, the control levers are to be brought to full pitch astern position as quickly as permitted by CPP control system. The rudder is to be kept at the mid position during the test.
- When the propelling unit has reached steady full astern rpm and ship's speed become zero, the Part 1 of the test is completed

PART 2

- Keep the pitch at full astern position until the vessel attains the full astern speed.
- Records the achieved RPM of main engines and final astern speed.
- After the vessel has reached full astern speed and engines running at their full revolutions attainable at astern direction, it should be kept for 10 mins with minimum steering action.

OBSERVATIONS

- Time of the order.
- Ship ahead speed at beginning of the test.
- Rpm of the main engine during ahead run at the time when full astern is ordered, at the time vessel speed zeros and at the maximum attainable ahead speed.
- The ship speed, heading angle and the ship track are to be measured at 20 second intervals using vessel's GPS until the vessel stops from full ahead speed.
- Depth of water at the trial area, wind direction, velocity, weather and sea conditions.
- Time to reach zero speed from maximum ahead speed and time lapsed from the order.
- During ship speed zero to astern trial; location, time engine RPM to be recorded at the start and end of the trial.



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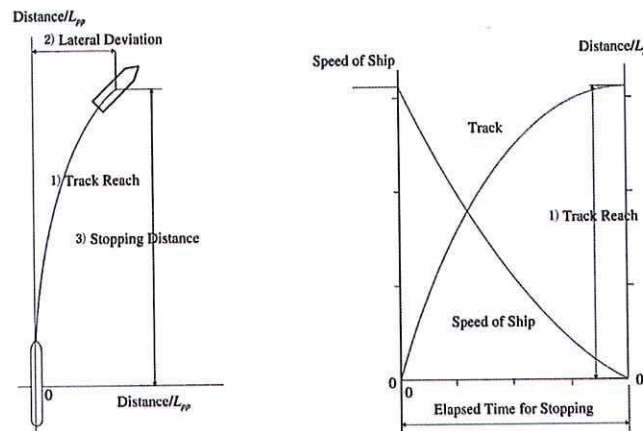


Figure 2

7. TURNING CIRCLE TEST

Turning circle tests are performed to both port and starboard at approach speed with a maximum rudder angle.

PROCEDURE

1. Trials shall be made to port and to starboard directions with rudder is moved to the hard over-position at 100% MCR. Vessel shall be loaded to the ballast loading condition with favourable trim.
2. The ship is brought to a steady speed and course. The trial is started by ordering the rudder to maximum rudder angle, port.
3. Rudder and engine control are kept constant during the turn. Take readings as heading changes by 30° , Engine conditions and rudder angle.
4. Trial is terminated when ship has completed 540° turn. Keep recording position values from DGPS.
5. Repeat the test by turning the rudder to maximum rudder angle to starboard side and repeat step 3 and 4.
6. Plot the position recordings.


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OBSERVATIONS AND RESULTS

- Time when helm was ordered.
- Maximum helm angle,
- Time
- Maximum heel angle and direction.
- Tactical diameter and advance to be derived by plotting the readings.

8. ZIG-ZAG MANEUVERING TRIAL

The zigzag test is a test the ship's yaw and course keeping ability.

(2) This test includes both right turning and left turning tests.

(3) This test consists of the 10/10-degrees zigzag test and the 20/20-degrees zigzag test.

PROCEDURE - 10/10-DEGREES ZIGZAG TEST

The 10/10-degrees zigzag test is carried out as follows:

- While the ship is running ahead at test speed, the rudder angle is changed to 10 degrees starboard (or port).
- When the ship's heading reaches 10 degrees starboard (or port) from the original course, the rudder angle is changed to 10 degrees port (or starboard).
- When the ship's heading reaches 10 degrees port (or starboard) from the original course, the rudder angle is changed to 10 degrees starboard (or port).
- The ship is returned to its original course.

PROCEDURE - 20/20-DEGREES ZIGZAG TEST

The 20/20-degrees zigzag test is carried out as follows:

- While the ship is running ahead at test speed, the rudder angle is changed to 20 degrees starboard (or port).



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- When the ship's heading reaches 20 degrees to starboard (or port) from the original course, the rudder angle is changed to 20 degrees port (or starboard).
- The ship is returned to its original course.

MEASUREMENT ITEMS AND REPORT

(1) The following items for the 10/10-degrees zigzag test are to be measured.

- Ship speed at the beginning and the end of the test
- Number of main engine revolutions at the beginning and the end of the test
- Elapsed time (t_{a1} and t_{a2} in the Figure) and distance travelled for the ship to change its heading to 10 degrees from the original course
- 1st overshoot angle (1) in the Figure)
- Elapsed time (t_{s1} and t_{s2} in the Figure) from when the ship overshoots the 10 degree heading until when the ship starts turning in the opposite direction.
- 2nd overshoot angle (2) in the Figure)

(2) In the 20/20-degrees zigzag test, measurement items specified in (1) are to be read with 20-degrees instead of 10-degrees, except (1)(f) above.

GRAPHICAL REPRESENTATION OF ZIGZAG TEST

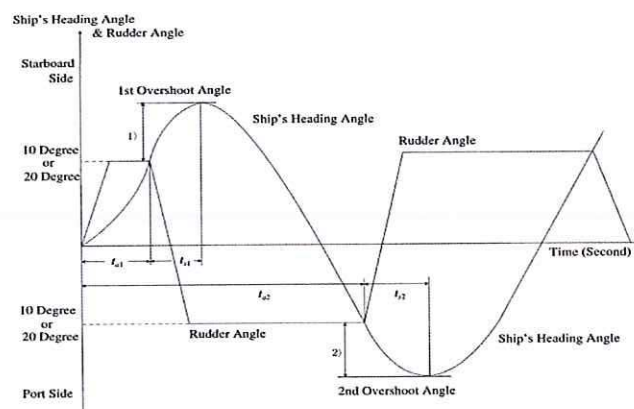


Figure 3



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9. ENGINE RELIABILITY (ENDURANCE) TRIALS

Endurance trials should be carried out for duration of four (04) hours at 100% MCR of main engines. Vessel shall operate around 01 (one) hour at cruising speed without PTO/PTI, before starting the endurance trial.

Vessel Loading– Ballast with propeller and rudder fully immersed.

OBSERVATIONS

In the endurance trial, the main engine parameters together with following general observations shall be made. Recordings shall be taken 30 minutes after entering the trial and at subsequent 30-minute intervals.

1. Operational Conditions and the engine room temperature.
2. Shaft bearing temperatures
3. Visual examination of Vibrations, behavior of the vessel.
4. Audible/ tactile examination for abnormal noise of engine, gearbox and associated pumps.
5. Exhaust lagging, exhaust condition and black smoke.
6. Condition of shaft earthing

Followings are to be recorded in 30 min intervals.

1. Sea state
2. Wind speed and direction
3. Date Time
4. Trial Location
5. Main engine RPM
6. Propulsion Unit RPM and Pitch
7. Engine Parameter (Use Engine parameter record sheet in Annex A)
8. Shaft bearing temperature (Use Bearing temperature record sheet in Annex A)
9. Fuel Oil consumption (Use FO Consumption record sheet in Annex A)
10. Engine room temperature to be issued in different locations according to following diagram.

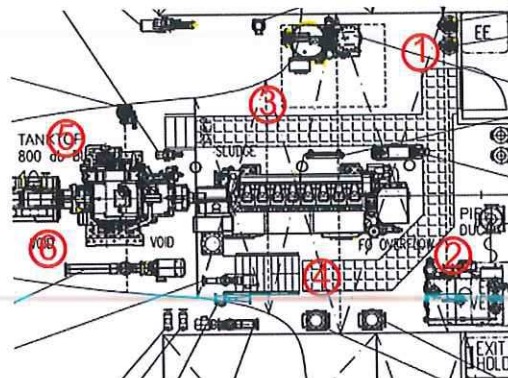


Figure 4


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10. THRUSTER TRIALS

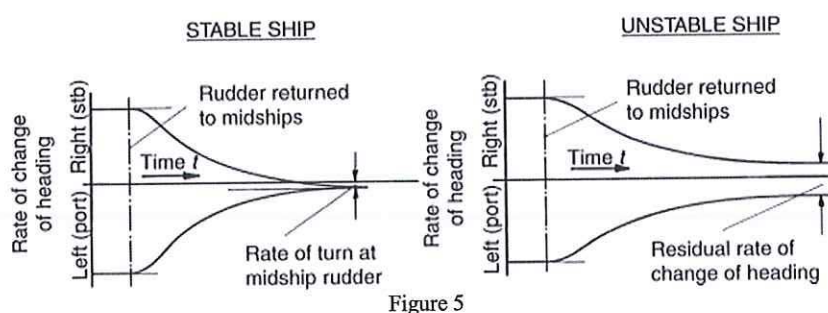
During the trial, performance of the bow thruster will be checked. Time for 90 degree turn at zero speed to starboard and Port will be measured

PROCEDURE:

- Ship turning trial using bow thruster is to be conducted.
- Time required to change RPM is noted to achieve full speed in both directions. Also thruster motor current will be recorded.
- Trials to be conducted for Zero Forward Speed of Vessel. Rudder at zero position.
- The vessel is brought to zero speed in the water with bow headed into wind direction. Record the base course. Put the bow thruster RPM to the maximum value to the port side. Record the time for ships' 90 degree heading angle changes. Record the time when the ship crosses the original course.
- Repeat the test to the STBD side and record the readings.
- Cooling Water temperature of Motor and the VFD to be recorded.

11. PULL- OUT MANOEUVRING TRIAL

The Purpose of this trial is to demonstrate the ship's course stability.



PRE-REQUISITE:

- Sea Trial for Steering Gear to be completed and verified.
- Navigation equipment and instruments must be calibrated, adjusted and tested.


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PROCEDURE:

1. Each trial consists of two runs, one to starboard and one to port. To conduct this test, the ship is to be in a steady state turn using rudder angle between 15° and 35° (Preferably 20°). Engine control setting is kept constant during the trial. When steady turning is obtained, the rudder is returned to midship. The trial continues while rate of turn decays to a new constant value: zero or non-zero. When new steady state is obtained again and kept for two minutes, trial ends.
2. If the ship possesses 'dynamic stability', the rate of turn will reduce towards zero with equal residual rates of turn for both port and starboard turns with the rudder held amidships. If there is an unequal residual rate of turn with rudder held amid ship, the ship is considered 'dynamically unstable'.
3. Readings of ship heading is to be recorded in every 30 seconds.
4. Rate of turn to be plotted against the time on the same graph for both port and starboard turnings.

12.MAN-OVERBOARD TRIAL

Man-overboard maneuvering is performed to provide information on the time taken and the deviation from course necessary to retrieve a person or object from the sea. These maneuvers will, in the absence of wind and current, bring the ship back to position where the man-overboard incident occurred.

PRE-REQUISITE:

- Sea Trial for Steering Gear to be completed and verified.
- Navigation equipment and instruments must be calibrated, adjusted and tested.

PROCEDURE:

With the ship initially under approach speed, the rudder is moved quickly to hard over starboard and held until ship has altered course by 70 degrees from initial course. At that time, the rudder is moved quickly to hard over port, until the ship is heading 180 degrees from initial course. Maneuver the Vessel in the same course until the ship has returned to the original position, or nearest position, where the maneuver was initiated.



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Following data to be derived from the trials;

- A plot of the ship's track
- The time taken to return to the point, or nearest position to that point, at which the maneuver was initiated
- The lateral deviation from the initial course at the point, or nearest position to that point, at which the maneuver was initiated.

13. ANCHOR TEST

In this test, the performance of the Anchor releasing, hoisting and braking shall be tested along with the time for hoisting.

TEST CONDITION

1. The test shall be carried out at deep sea (minimum 82.5m depth).
2. During the test the vessel should be **stationary and facing the wind**.

PROCEDURE

3. Anchor should be lowering to sea controlled by the winch power until clear the bulbous bow.
4. Then cable lifter clutch should be disengaged, and 3-4 lengths of the chain should be released. While dropping the anchor brake should apply at every 1/2 length of chain to confirm the pay out and holding ability of the cable lifter brake.
5. To test the hoisting performance, windup the anchor chain at full power on the windlass until it clears the water.

OBSERVATION

During the test, the following observations are to be made and recorded.

1. Depth of water (82.5m~110m)
2. Weather and sea conditions
3. Anchor hoisting time, current and voltage
4. Releasing condition
5. Braking condition.
6. Hoisting condition.


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14. RESCUE BOAT OPERATIONAL LAUNCHING TEST

The purpose of this test is to demonstrate the launching of rescue boats as per SOLAS requirement:

REFERENCE:

LSA CODE, REGULATION 4.4.1.3:

All lifeboats shall be of sufficient strength to:

- Enable them to be safely launched into the water when loaded with their full complement of persons and equipment; and
- Be capable of being launched and towed when the ship is making headway at a speed of 5 knots in calm water.

LSA CODE, REGULATION 4.4.7.7:

Every lifeboat shall be fitted with a device to secure a painter near its bow. The device shall be such that the lifeboat does not exhibit unsafe or unstable characteristics when being towed by the ship making headway at speeds up to 5 knots in calm water. Except for free-fall lifeboats, the painter securing device shall include a release device to enable the painter to be released from inside the lifeboat, with the ship making headway at speeds up to 5 knots in calm water.

PROCEDURE:

- Demonstrate the safe launching of rescue boats at while the vessel is heading at constant 5 knots speed in calm water. Painter to be attached to the hook at the bow.
- Release the boat from davit.
- Start the engine.
- Painter to be released from the release devices at the bow & observes the safe release.
- Operate the boat for 3 minutes before recovering.

15. ELECTRICAL SYSTEM TESTS

System related to electrical will be tested and all relevant tests are included in separate test protocols. Below shows the mapping of relevant test requirement with relevant test document

- Approved load balance calculation will be verified (as far as practical). Approved Load analysis is attached for verification in *Annex B*.
- Temperatures of Aux generators, Transformers, PTO/PTI motors & Bow Thruster Motors will be recorded. In addition, 100% PTO (Shaft Generator) power at engine rated speed will be conducted for 1 hour in *BT-04 Main Generator, Emergency Generator & PTO/PTI*


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Motor Test Procedure and BT-25 Hybrid System Hybrid Drive Harbour Acceptance Test (HAT) Sea Acceptance Test (SAT)

- Four-hour continuous operation with unattended machinery spaces(E0) will conducted by combing with the endurance test of the Main engines. During this test all functions of the extension alarm system will be tested in *BT-45A Testing of IAS*
- ESS system will be tested in *BT-25A Hybrid System Battery Test procedure*
- Sea trial test relevant to PMS will be tested in *BT-45B Testing of Power Management System*
- Harmonic measurement of 690Vac MSB will be tested in **Annex A - NC025X -STR-017 - Harmonic Measurement Record Sheet**

16.NOISE AND VIBRATION MEASUREMENT

Shall be carried out according to the document, "Noise and vibration Measuring Plan-DR/NC/0250/341/002" issued separately.

17.COMBINATOR MODE SPEED TEST

The purpose of this trial is to determine the vessel speed against the engine RPM and Pitch rating at combinator mode under following order conditions.

- Full ahead
- Half ahead
- Slow ahead
- Dead slow Ahead
- Dead slow astern
- Slow astern
- Half astern
- Full astern

After each order sufficient time to be given for the vessel to become steady before taking the readings. This waiting time shall be agreed by the concern parties at the time of trial. Vessel heading shall be selected such a way the wind effect is minimum, and the rudder movement shall be kept within five (5) degrees either way.


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ANNEX A

Please find the attached Annex A for the record sheets.

Record Sheet Index

- | | | | |
|-----|-----------------|---|---|
| 1. | NC0251-STR-001 | - | Speed Power Trial Log Sheet |
| 2. | NC0251 -STR-002 | - | Steering Trial Record Sheet |
| 3. | NC0251 -STR-003 | - | Engine Parameter Record Sheet |
| 4. | NC0251 -STR-004 | - | Shaft Bearing Temperature Record Sheet |
| 5. | NC0251 -STR-005 | - | FO Consumption Record Sheet |
| 6. | NC0251 -STR-006 | - | Inertia Test Record Sheet |
| 7. | NC0251 -STR-007 | - | Crash Astern Test Record Sheet |
| 8. | NC0251 -STR-008 | - | Turning Circle Test Record Sheet |
| 9. | NC0251-STR-009 | - | Zigzag Maneuvering Trial Record Sheet |
| 10. | NC0251 -STR-010 | - | Endurance Test General Data |
| 11. | NC0251 -STR-011 | - | Thruster Trials Record Sheet |
| 12. | NC0251 -STR-012 | - | Pull-Out Trials Record Sheet |
| 13. | NC0251 -STR-013 | - | Man Overboard Trial Record sheet |
| 14. | NC0251 -STR-014 | - | Anchor Test Record sheet |
| 15. | NC0251 -STR-015 | - | Rescue Boat Operation Check Sheet |
| 16. | NC0251 -STR-016 | - | Combinator Mode Speed Test record sheet |
| 17. | NC0251 -STR-017 | - | Harmonic Measurement Record Sheet |

S N	Trial Title	Record sheet (NC025X-STR-YYY) X= 0, 1, 2, 3, 4																
		YYY =																
		001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016	017
1.	Speed Trial	X		X	X	X												
2.	Steering Trial		X															
3.	Crash Stern test							X										
4.	Turning Circle								X									
5.	Inertia Test						X											
6.	Zigzag test									X								
7.	Endurance trial			X	X	X					X							
8.	Thruster trial											X						
9.	Pull-out trial												X					
10.	Man-overboard trial													X				
11.	Anchor Trial														X			
12.	Rescue boat operation															X		
13.	Combinator Mode Speed Test																X	
14.	Harmonic Measurement Record																	X

Note; Hull number in each record sheet shall be altered to match the respective hull number of the sister vessels in series.


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NC0251-STR-001- sheet 1

SPEED- POWER TRIAL LOG FORM

Ship Name	MISJE VERDE	Date (DD MM YYYY)	12	04	2023
		Power setting	67-100		% MCR

Ship		
T _{fwd}	3.15	m
T _{aft}	4.00	m
Displacement	3462	tons

Environment		
T _{air}	28.8	°C
T _{water}	30.2	°C
P _{water}	1022	Kg/m ³
Height of Anemometer above water line	20.4	m

Propeller shaft		
Outer dia	260	mm
Inner dia	100	mm
Steel type	78.29	GPa

Location	
Lat	6°44.005N
Lon	79°32.540E

Run no	Time (Hrs)	Description	Fwd/Rtn	Heading	Speed DGPS	UKC	Relative wind			Wind Driven Waves			Swell			Propeller		
							Speed	Dir	H	Dir	Period	H	Dir	Period	Torque	Power	Revs	Pitch
01	1805	67% MCR	F	90°	11.43	1000	3.2	270°	0.5	270°	4	0.75	260°	6	61.8	1066	165	69
02	1836	67% MCR	R	270°	11.67	1000	2.8	270°	0.5	270°	4	0.75	260°	6	62.3	1075	165	69
03	1904	75% MCR	F	90°	11.78	1000	2.8	270°	0.5	270°	4	0.75	260°	6	68.5	1182	165	72
04	1935	75% MCR	R	270°	11.96	1000	3.0	270°	0.5	270°	4	0.75	260°	6	68.0	1174	165	72
05	2005	100% MCR	F	90°	12.54	1000	-3.2	0°	0.5	270°	4	0.75	260°	6	81.6	1410	165	100
06	2035	100% MCR	R	270°	12.65	1000	2.9	0°	0.5	270°	4	0.75	260°	6	81.8	1414	165	100
07	2104	100%+PTI	F	90°	14.16	1000	-3.0	0°	0.5	270°	4	0.75	260°	6	126.8	2190	165	100
08	2135	100%+PTI	R	270°	14.45	1000	2.6	0°	0.5	270°	4	0.75	260°	6	127.3	2199	165	100

YARD ENGINEER

OWNER

DNV SURVEYOR

U. M. D. S. Harischandra

Design Manager (Hull & Outfitting)

Colombo Dockyard PLC

(Company No PQ 50)

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Speeds at Contractual Loading Conditions (at draught of 6.3m even keel)		
Contract speed (MCR speed): At shaft power of 2344 kW, achieved speed is 13.42 knots		
Service speed: At shaft power of 1098 kW, achieved speed is 11.51 knots		

YARD ENGINEER	OWNER	DNV SURVEYOR
		

U. M. D. S. Harischandra
Design Manager (Hull & Outfitting)
Colombo Dockyard PLC
(Company No PQ 50)


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NC0251-STR-002 - sheet 1

NC0251 FCR 002 - 200000					
STEERING GEAR TEST				DATE	13/04/2023
				YARD No	NC 0251
LOCATION		Outside Colombo Harbour		ENGINE RPM	1000
WEATHER		Sunny		VESSEL SPEED	11.5knots
WIND	DIR	Westerly		SEA STATE	2 - 3
	SPEED	3 knots		WATER DEPTH	37 m
MAKE (Str Gear)		KONGSBERG		MODEL	SR 642 FCP240
VESSEL DRAFT (m)		FWD	MID	AFT	
		3.18	3.6	4.02	

RUDDER ANGLE SYNCHRONIZATION	VERIFIED	REMARKS
Local	Yes	
Wheelhouse	Yes	
ECR	Yes	

1. TURNING TEST WITH PUMP NO 01 RUNNING			VESSEL SPEED	11.8 knots	
	MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)
	CENTER 0° - 35° PORT	12	35	40	1.3
	35° PORT - 35° STBD	25	70	55	2.5
	35° STBD - 35° PORT	25	70	55	2.5
	35° PORT - CENTER 0°	12	35	40	1.3

2. TURNING TEST WITH PUMP NO 02 RUNNING			VESSEL SPEED	11.6 knots	
	MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)
	CENTER 0° - 35° PORT	12	35	40	2.0
	35° PORT - 35° STBD	25	70	52	3.75
	35° STBD - 35° PORT	25	70	55	3.75
	35° PORT - CENTER 0°	12	35	45	2.0

		YES/ NO	Remarks
1	Abnormal behaviour of Machinery	NO	
2	Abnormal Behaviour of Vessel	NO	

YARD ENGINEER	OWNER	DNV SURVEYOR
 U. M. D. S. Harischandra Design Manager (Hull & Outfitting, Colombo Dockyard PLC (Company No PQ 50)		



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NC0251-STR-002 – sheet 2

3. TIME MEASUREMENT WITH NO.1 PUMP RUNNING			VESSEL SPEED	11.8 knots	
MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	MAX. PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)	MOTOR CURRENT (A)
PORT - STBD (35°-30°)	23	65	50	3.0	4.2
STBD - PORT (35°-30°)	23	65	45	3.5	5.1

4. TIME MEASUREMENT WITH NO.2 PUMP RUNNING			VESSEL SPEED	11.7 knots	
MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	MAX. PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)	MOTOR CURRENT (A)
PORT - STBD (35°-30°)	23	65	62	4.0	4.2
STBD - PORT (35°-30°)	23	65	52	2.5	5.1

5. TIME MEASUREMENT WITH BOTH PUMPS RUNNING			VESSEL SPEED	11.6 knots	
MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	MAX. PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)	MOTOR CURRENT (A)
PORT - STBD (35°-30°)	13	65	55	5.0	7.1/4.5
STBD - PORT (35°-30°)	12	65	55	3.0	7.82/4.95

6. EMERGENCY STEERING TEST			VESSEL SPEED	11.6 knots	
6.1 TIME MEASUREMENT WITH NO.1 PUMP RUNNING					
MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	MAX. PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)	MOTOR CURRENT (A)
PORT - STBD (35 ⁰ -30 ⁰)	24	65	52	3	4.25
STBD - PORT (35 ⁰ -30 ⁰)	24	65	58	2	4.69

6.2 TIME MEASUREMENT WITH NO.2 PUMP RUNNING					
MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	MAX. PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)	MOTOR CURRENT (A)
PORT - STBD (35°-30°)	24	65	52	2.5	4.2
STBD - PORT (35°-30°)	24	65	58	3	5.35

YARD ENGINEER	OWNER	DNV SURVEYOR

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7. EMERGENCY STEERING TEST			VESSEL SPEED	7 knots	
7.1 TIME MEASUREMENT WITH NO.2 PUMP RUNNING					
MOVEMENT	TIME TAKEN (S)	ACTUAL RUDDER ANGLE (DEGREES)	MAX. PRESSURE (bar)	MAX HEEL ANGLE (DEGREES)	MOTOR CURRENT (A)
PORT - STBD (15 ⁰ -15 ⁰)	11	30	22	2	4.27
STBD - PORT (15 ⁰ -15 ⁰)	12	30	20	3	4.5

	POWER UNIT OPERATIONS	OK / Not OK	Remarks
1	Running of power units, demonstration	OK	
2	Transfer between power units satisfactory	OK	
5	Time to regain steering capability after isolating one power actuating system	OK	

	General observation		Remarks
1	Abnormal behaviour of Machinery	YES/ NO	
2	Abnormal Behaviour of Vessel	YES/ NO	

REMARK

YARD ENGINEER	OWNER	DNV SURVEYOR

U. M. D. S. Harischandra
 Design Manager (Hull & Outfitting)
 Colombo Dockyard PLC
 (Company No PQ 50)



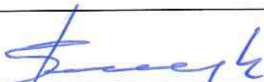
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NC0251-STR-003
- sheet 1

sheet 1

MAIN ENGINE TEST RECORD					DATE			12/04/2023		
					YARD NO			NC251		
TEST TITLE	Speed trial				ENGINE MAKE			Wartsila		
ENGINE SERIAL NO	XAAC225151				MODEL			W8L20		
CLASSIFICATION	DNV				OUTPUT (kW)			1600		
→ ← → ← → ← → ←										
MCR		67%	67%	75%	75%	100%	100%	100%+PTI	100%+PTI	
Time	Hrs	1805	1836	1904	1935	2005	2035	2104	2135	
Engine Speed	Rpm	1021	1020	1019	1018	1015	1019	1012	1021	
Turbo Speed	Rpm	32810	33010	34150	34920	39240	39160	37680	38570	
Propeller pitch	%	69	69	72	72	81	81	100	100	
Rack Position	Mm	22.2	23.4	23.6	23.6	27.8	29.1	27.6	29.1	
Engine Load	%	68	69	83	78	94	95	91	96	
Engine running pressure readings										
Lube oil pressure	Bar	4.5	4.4	4.4	4.5	4.2	4.3	4.5	4.4	
Fuel oil pressure	Bar	7.5	7.5	7.4	7.4	7.3	7.3	7.3	7.3	
Cooling water pressure (HT)	Bar	2.80	2.78	2.81	2.78	2.77	2.79	2.82	2.82	
Cooling water pressure (LT)	Bar	2.69	2.68	2.7	2.67	2.65	2.67	2.71	2.69	
Charge air pressure	Bar	2.13	2.18	2.41	2.57	3.59	3.55	3.21	3.43	
Exhaust Gas Temperature										
Cylinder 1	°C	405	406	409	410	436	438	428	435	
Cylinder 2	°C	385	386	388	389	411	414	405	411	
Cylinder 3	°C	376	376	379	379	398	401	393	398	
Cylinder 4	°C	389	391	394	395	417	421	411	417	
Cylinder 5	°C	378	377	381	382	404	407	398	403	
Cylinder 6	°C	376	376	380	381	401	404	396	401	
Cylinder 7	°C	384	384	387	388	407	410	401	407	
Cylinder 8	°C	371	371	374	376	396	399	390	395	
Before Turbocharger	°C	512	511	515	516	540	543	533	539	
Exhaust gas outlet	°C	361	359	351	353	345	347	345	345	
Bearing Temperature										
Bearing 0	°C	85	85	85	85	85	86	85	85	
Bearing 1	°C	82	81	82	82	83	84	83	84	
Bearing 2	°C	85	84	85	85	87	88	87	87	
Bearing 3	°C	84	83	84	84	86	86	86	86	
YARD ENGINEER		OWNER				DNV SURVEYOR				
										

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Bearing 4	°C	85	84	85	85	87	88	87	87	
Bearing 5	°C	83	83	83	83	86	86	86	86	
Bearing 6	°C	83	82	83	83	86	86	86	86	
Bearing 7	°C	84	84	85	84	87	87	86	87	
Bearing 8	°C	85	85	85	85	88	88	88	88	
Bearing 9	°C	81	81	81	81	83	83	83	83	

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Internal Cooling Water Temperature

Jacket inlet (HT)	°C	85	85	85	85	85	86	86	86	
Engine outlet (HT)	°C	90	90	90	90	92	92	93	92	
Engine inlet (LT)	°C	42	42	42	42	43	43	43	43	
Engine outlet (LT)	°C	54	53	54	54	59	59	59	59	

Lubricating Oil Temperature

Engine LO inlet	°C	63	63	64	63	65	65	65	65	
-----------------	----	----	----	----	----	----	----	----	----	--

Charge Air Temperature

Charge Air After Cooler	°C	52	50	51	51	58	59	59	59	
-------------------------	----	----	----	----	----	----	----	----	----	--

E/R Temperature

Zone 1 (Fwd P)	°C	37.2	36.3	37.3	36.7	37.3	36.7	36.6	36	
Zone 2 (Fwd S)	°C	36.3	35.2	35.4	34.5	35	35.1	34.2	34.1	
Zone 3 (Mid C)	°C	39.1	38.7	37.7	37.9	38.6	37.9	37.1	38.4	
Zone 4 (Aft P)	°C	34.7	34.3	34.4	34.7	34.2	34.3	33.7	34.0	
Zone 5 (Aft S)	°C	39.6	39	39.3	39.9	40.4	39.6	38.9	39.8	
Zone 6 (Aft C)	°C	40.0	40.3	39.9	37.9	42.6	42.6	41.7	42.1	

Box Cooler (FW)

Before cooler	°C	54.5	54.3	55.8	56	61.8	62.3	60.5	62.2	
After cooler	°C	32.9	33.1	33.1	33.3	33.8	33.4	33.7	33.6	

GB Cooler (Lube Oil)

Before cooler	°C	53	53	53	53	53	53	54	53	
After cooler	°C	45	44	44	45	45	45	41	44	

	General observation		Remarks
1	Abnormal behaviour of Machinery	YES/ NO	
2	Abnormal Behaviour of Vessel	YES/ NO	
3	Maximum Surface temperature on main Engine (°C)	91	

REMARKS

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-004

SHAFT BEARING TEMPERATURES				DATE	12/04/2023
TEST TITLE	Speed Trial			YARD NO	NC251
Bearing Make/Model					
DRAFT (m)	FWD	MID	AFT	LOCATION	Outside Colombo Harbour
	3.15	3.6	4.0		

TIME	ENGINE RPM	PROPELLER RPM	PROPELLER PITCH (%)	STERNTUBE FWD BEARING TEMP (°C)	STERNTUBE AFT BEARING TEMP (°C)
1805	1021	165	69	53	48
1836	1020	165	69	53	48
1904	1019	165	72	54	48
1935	1018	165	72	54	48
2005	1015	165	81	54	48
2035	1019	165	81	54	48
2104	1012	165	100	55	48
2135	1021	165	100	55	48

STERN TUBE FED SEAL CONDITION -

OVERHEAT- NO
LEAK OBSERVED - NO

REMARKS

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-005

FUEL OIL CONSUMPTION				DATE	12/04/2023
				YARD NO	NC251
TRIAL CONDITION	Calm Sea			SEA STATE	3
WIND DIRECTION	Westerly			WIND SPEED	3 knots
DRAFT (m)	FWD	MID	AFT	LOCATION	Outside Colombo Harbour
	3.15	3.6	4.0		

MAIN ENGINE FUEL OIL CONSUMPTION RECORD

TEST TITLE		67% Speed Trial		75% Speed Trial	
Direction in double run		⇒	⇐	⇒	⇐
Fuel Rack Position		22.2	23.4	23.6	23.6
Engine Power (From Fuel Rack)		68	69	83	78
Engine RPM		1021	1020	1019	1018
Propeller Pitch (%)		69	69	72	72
Speed Recorded		11.43	11.67	11.78	11.96
Time Duration (min)		10	10	10	10
FLOW METER READING	Time	1805-1815	1836-1846	1904-1914	1935-1945
ME Supply	(Initial)	9111.85	10023.81	10877.14	11807.19
	(Final)	9402.98	10319.11	11175.05	12093.80
ME Return	(Initial)	8031.17	8838.36	9585.75	10397.37
	(Final)	8290.03	9099.58	9846.04	10647.08
Gene Engine 1 Supply	(Initial)	31736.76	31865.06	31988.17	32119.69
	(Final)	31775.83	31908.95	32028.05	32157.79
Gene Engine 1 Return	(Initial)	36367.99	36482.45	36592.45	36709.92
	(Final)	36402.88	36521.84	36628.0	36746.12
Gene Engine 2 Supply	(Initial)	18669.6	18799.40	18831.72	18965.32
	(Final)	18709.42	NA	18872.45	19006.92
Gene Engine 2 Return	(Initial)	29626.95	29746.46	29774.87	29894.8
	(Final)	29664.05	29783.85	29811.83	29932.6
Net Supply ME (L)		291.13	295.3	297.91	286.61
Net Return ME (L)		258.86	261.22	260.29	249.71
Net Supply Gen1 (L)		37.11	43.89	39.88	37.8
Net Supply Gen 2 (L)		39.82	NA	40.73	41.6
Fuel cons. for Engine (L/h)		193.62	204.48	225.72	221.4
Total Fuel cons. (L/h)		199.05		223.56	

YARD ENGINEER	OWNER	DNV SURVEYOR

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FUEL OIL CONSUMPTION				DATE	12/04/2023
				YARD NO	NC251
TRIAL CONDITION	Calm Sea			SEA STATE	3
WIND DIRECTION	Westerly			WIND SPEED	3 knots
DRAFT (m)	FWD	MID	AFT	LOCATION	Outside Colombo
	3.15	3.6	4.0		

MAIN ENGINE FUEL OIL CONSUMPTION RECORD					
TEST TITLE		100% Speed Trial		100%+PTI Speed Trial	
Direction in double run		⇒	⇐	⇒	⇐
Fuel Rack Position		27.8	29.1	27.6	29.1
Engine Power (From Fuel Rack)		94	95	91	96
Engine RPM		1015	1019	1012	1021
Propeller Pitch (%)		81	81	100	100
Speed Recorded		12.54	12.65	14.16	14.45
Time Duration (min)		10	10	10	10
FLOW METER READING	Time	2005-2015	2035-2045	2104-2114	2135-2145
ME Supply	(Initial)	12693.45	13605.53	14520.63	15430.66
	(Final)	12999.14	13911.68	14807.09	15723.63
ME Return	(Initial)	11147.1	11908.78	12672.49	13435.18
	(Final)	11403.21	12163.86	12914.18	13679.09
Gene Engine 1 Supply	(Initial)	32246.33	32376.29	32505.857	32634.66
	(Final)	32289.07	32419.88	32542.416	32671.27
Gene Engine 1 Return	(Initial)	36822.45	36938.44	37053.97	37167.62
	(Final)	36860.55	36971.22	37086.03	37199.83
Gene Engine 2 Supply	(Initial)	19094.0	19226.3	19358.73	19490.4
	(Final)	19137.47	19270.56	19395.67	19527.21
Gene Engine 2 Return	(Initial)	30010.14	30128.51	30247.24	30362.81
	(Final)	30049.03	30167.31	30279.88	30395.26
Net Supply ME (L)		305.69	306.15	286.46	292.97
Net Return ME (L)		256.11	255.08	241.69	243.91
Net Supply Gen1 (L)		43.47	43.59	36.95	36.81
Net Supply Gen 2 (L)		42.74	44.26	36.56	36.61
Fuel cons. for Engine (L/h)		297.48	306.42	268.62	294.36
Total Fuel cons. (L/h)		301.95		281.49	

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-003 - sheet 1

MAIN ENGINE TEST RECORD							DATE		13/04/2023	
TEST TITLE							YARD NO		NC 0251	
ENGINE SERIAL NO							ENGINE MAKE		Wartsila	
CLASSIFICATION							MODEL		W8L20	
							OUTPUT (kW)		1600	
MCR		100%	100%	100%	100%	100%				
Time	Hrs	2337	0007	0037	0107	0137				
Engine Speed	Rpm	1002	997	1000	1002	1000				
Turbo Speed	Rpm	38160	38050	38400	38460	38510				
Propeller pitch	%	82	81	81	81	81				
Rack Position	Mm	28.2	27.9	28.3	28.7	28.1				
Engine Load	%	698	94	94	96	95				
Engine running pressure readings										
Lube oil pressure	Bar	4.3	4.3	4.3	4.3	4.2				
Fuel oil pressure	Bar	7.3	7.3	7.4	7.4	7.4				
Cooling water pressure (HT)	Bar	2.76	2.78	2.8	2.8	2.79				
Cooling water pressure (LT)	Bar	2.67	2.68	2.68	2.68	2.69				
Charge air pressure	Bar	3.34	3.31	3.4	3.4	3.43				
Exhaust Gas Temperature										
Cylinder 1	°C	428	431	433	435	437				
Cylinder 2	°C	403	408	410	411	413				
Cylinder 3	°C	391	395	396	399	399				
Cylinder 4	°C	411	415	416	418	421				
Cylinder 5	°C	396	400	401	403	404				
Cylinder 6	°C	394	398	399	401	402				
Cylinder 7	°C	399	403	404	406	407				
Cylinder 8	°C	389	392	394	395	397				
Before Turbocharger	°C	533	535	537	539	541				
Exhaust gas outlet	°C	344	342	343	343	343				
Bearing Temperature										
Bearing 0	°C	85	85	85	85	85				
Bearing 1	°C	83	83	84	84	84				
Bearing 2	°C	87	87	88	88	87				
Bearing 3	°C	85	86	86	86	86				
Bearing 4	°C	87	87	87	87	87				
Bearing 5	°C	85	85	86	86	85				
Bearing 6	°C	85	85	86	86	85				
Bearing 7	°C	86	86	86	87	86				
Bearing 8	°C	87	88	88	88	88				
Bearing 9	°C	82	83	83	83	83				

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-003 – sheet 2

Internal Cooling Water Temperature										
Jacket inlet (HT)	°C	86	86	86	86	86				
Engine outlet (HT)	°C	92	92	92	92	92				
Engine inlet (LT)	°C	43	43	43	43	43				
Engine outlet (LT)	°C	58	59	59	59	59				
Lubricating Oil Temperature										
Engine LO inlet	°C	64	65	65	65	65				
Charge Air Temperature										
Charge Air After Cooler	°C	57	58	58	59	58				
E/R Temperature										
Zone 1 (Fwd P)	°C	34.3	34.1	33.6	36.2	33.4				
Zone 2 (Fwd S)	°C	34.3	33.4	33.6	35.1	32.9				
Zone 3 (Mid C)	°C	38.2	36.2	37.6	38.5	37.6				
Zone 4 (Aft P)	°C	32.2	32.7	32.5	33.1	32.4				
Zone 5 (Aft S)	°C	38.1	37.4	38.3	38.8	38.6				
Zone 6 (Aft C)	°C	39.4	40.8	42.5	41.6	41.1				
Box Cooler (FW)										
Before cooler	°C	59	61.2	61.9	62.7	62.5				
After cooler	°C	30.9	32.5	33.4	33.5	33.6				
GB Cooler (Lube Oil)										
Before cooler	°C	50	50	51	51	52				
After cooler	°C	42	42	43	43	43				
	General observation							Remarks		
1	Abnormal behaviour of Machinery				YES/ NO					
2	Abnormal Behaviour of Vessel				YES/ NO					
3	Maximum Surface temperature on main Engine (°C)						103			

REMARKS

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-004

NC0251 SHR 001					
SHAFT BEARING TEMPERATURES				DATE	13/04/2023
TEST TITLE	Endurance			YARD NO	NC 0251
Bearing Make/Model					
DRAFT (m)	FWD	MID	AFT	LOCATION	Outside Colombo
	3.18	3.6	4.02		

TIME	ENGINE RPM	PROPELLER RPM	PROPELLER PITCH (%)	STERNTUBE FWD BEARING TEMP (°C)	STERNTUBE AFT BEARING TEMP (°C)
2337	1015	165	81	52	46
0007	997	166	81	53	47
0037	1000	165	80	54	48
0107	1002	165	81	54	48
0137	1000	165	81	55	49

STERN TUBE FED SEAL CONDITION -

OVERHEAT- NO

LEAK OBSERVED - NO

CONDITION OF SHAFT EARTHING (ENDURANCE TRIAL) -

Satisfactory / Not satisfactory

REMARKS

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-005

FUEL OIL CONSUMPTION				DATE	13/04/2023
				YARD NO	NC 0 251
TRIAL CONDITION	Calm Sea			SEA STATE	3
WIND DIRECTION	Westerly			WIND SPEED	3 knots
DRAFT (m)	FWD	MID	AFT	LOCATION	Outside Colombo
	3.18	3.6	4.02		

MAIN ENGINE FUEL OIL CONSUMPTION RECORD

TEST TITLE		Endurance		Endurance	
		2337	0007	0037	0107
Fuel Rack Position		28.2	27.9	28.3	28.7
Engine Power (From Fuel Rack)		98%	94%	94%	96%
Engine RPM		1002	997	1000	1002
Propeller Pitch (%)		82	81	81	81
Speed Recorded		11.8	12	11.7	12.3
Time Duration (min)		30	30	30	30
FLOW METER READING	Time	2337-0007	0007-0037	0037-0107	0107-0137
ME Supply	(Initial)	37276.96	38201.08	39142.73	40083.66
	(Final)	38201.08	39142.73	40083.66	41031.15
ME Return	(Initial)	32982.81	33768.70	34563.86	35357.71
	(Final)	33768.70	34563.86	35357.71	36156.59
Gene Engine 1 Supply	(Initial)	NA	NA	NA	NA
	(Final)	NA	NA	NA	NA
Gene Engine 1 Return	(Initial)	NA	NA	NA	NA
	(Final)	NA	NA	NA	NA
Gene Engine 2 Supply	(Initial)	NA	NA	NA	NA
	(Final)	NA	NA	NA	NA
Gene Engine 2 Return	(Initial)	NA	NA	NA	NA
	(Final)	NA	NA	NA	NA
Net Supply ME (L)		924.12	941.65	940.93	947.49
Net Return ME (L)		785.89	795.16	793.85	798.88
Net Supply Gen1 (L)		NA	NA	NA	NA
Net Supply Gen 2 (L)		NA	NA	NA	NA
Fuel cons. for Engine (L/h)		276.46	292.98	294.16	297.22
Total Fuel cons. (L/h)		290.21		295.69	

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-006

INERTIA TEST			DATE		13/04/2023	
			YARD NO		NC 0251	
LOCATION	Outside Colombo Harbour		SEA STATE		3	
LOAD CONDITION	100%		DEPTH OF WATER		43.9	
WIND DIRECTION	Westerly		WEATHER		Sunny	
WIND SPEED	3 knots		TIME		1645	
VESSEL DRAFT (m)	FWD	3.18	MID	3.6	AFT	4.02

INERTIA TRIAL

PARAMETERS	INITIAL READINGS	FINAL READINGS
BASE COURSE HEADING (DEG)	190.7°	273°
PROPELLER PITCH (%)	81%	1%
VESSEL SPEED (KNOTS)	12	5
ENGINE RPM	1019	602
SHAFT RPM	165	99
GPS POSITION	06°51.600'N 079°45.417'E	06°51.384'N 079°45.320'E

PARAMETER	VALUE	REMARKS
ELAPSED TIME	110s	
RUNNING DISTANCE (m)	440	

REMARKS

YARD ENGINEER	OWNER	DNV SURVEYOR

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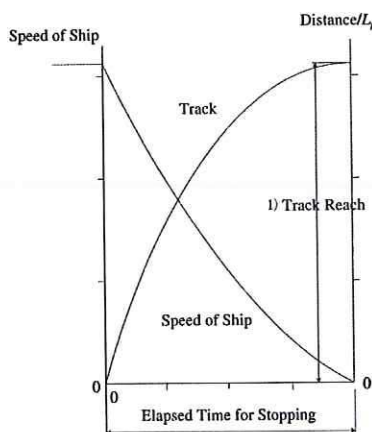
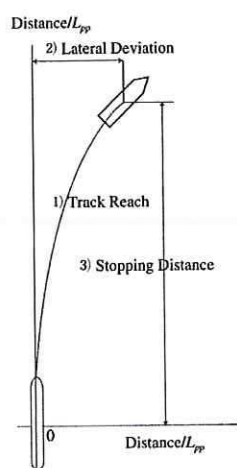
NC0251-STR-007 – sheet 1

CRASH ASTERN TEST			DATE		13/04/2023	
			YARD NO		NC251	
LOCATION	Outside Colombo Harbour		SEA STATE		3	
LOAD CONDITION	100%		DEPTH OF WATER		45m	
WIND DIRECTION	Westerly		WEATHER		Fair	
WIND SPEED	3 knots		TIME		1945	
VESSEL DRAFT (m)	FWD	3.18	MID	3.6	AFT	4.02

Part 1

VESSEL AHEAD TO STOP

TIME	VESSEL SPEED (KNOTS)	HEADING ANGLE	GPS LOCATION	MAIN ENGINE REV.	PERCENTAGE OF RATED AHEAD RPM
START – 0 s	12.1	0	06° 52.750'N 079° 46.962'E	1012	100%
20 s	11.4	0	06° 52.817'N 079° 46.964'E	1014	100%
40 s	9.5	2	06° 52.873'N 079° 46.966'E	1009	100%
60 s	8	9	06° 52.922'N 079° 46.967'E	1014	100%
80 s	6.9	24	06° 52.962'N 079° 46.969'E	1009	100%
100 s	5.2	44	06° 52.993'N 079° 46.974'E	1016	100%
Vessel Stop (s)	0	88	06° 53.033 N 079° 46.983'E	1012	100%



Track reach	520m
Stopping Distance	520m
Lateral Deviation	67m
Time to Stop	144s

YARD ENGINEER	OWNER	DNV SURVEYOR

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(Company No PQ 50)


Colombo Dockyard PLC
SHIP REPAIRERS, SHIP BUILDERS AND HEAVY ENGINEERS - SRI LANKA

PO. BOX 906, PORT OF COLOMBO, COLOMBO - 15. Web: - www.cdl.lk

NC0251-STR-007 – sheet 2

PARAMETERS	INITIAL READINGS (FULL AHEAD)	INTERMEDIATE READING (VESSEL STOP)	FINAL READINGS (FULL ASTERN ATTAINABLE)
PROPELLER PITCH (%)	77%	81%	80%
ENGINE RPM	1011	1014	1009
SHAFT RPM	165	165	165

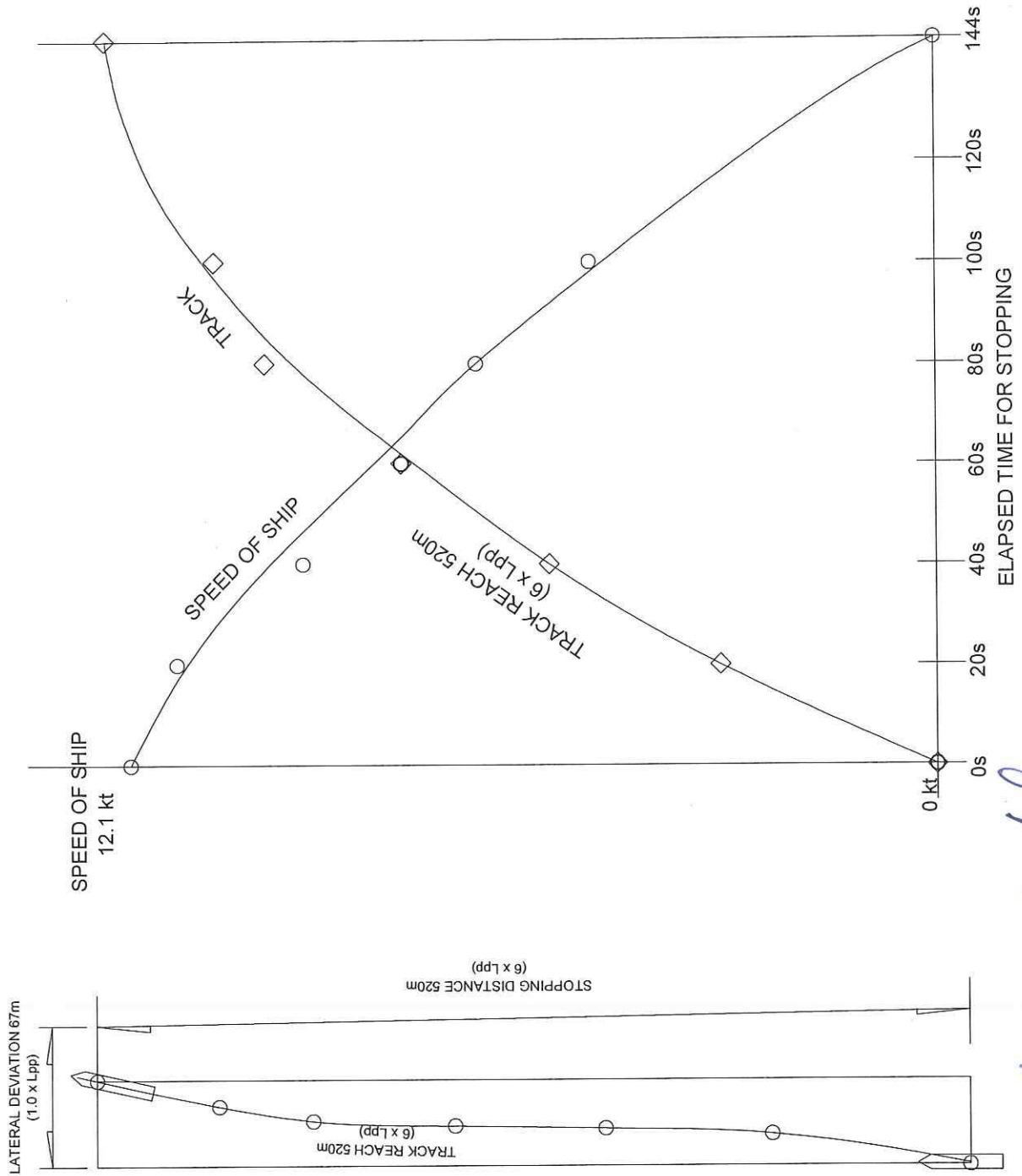
PARAMETER	VALUE	REMARKS
TIME FOR PITCH TO ZERO (S)	14	
TIME FOR PITCH TO ASTERN (S)	49	
TIME FOR SHIP TO STOP (S)	144	
DISTANCE TAKEN BY SHIP TO STOP (m)	520	

Part 2
VESSEL STOP TO ASTERN

TIME FOR THE MAXIMUM ASTERN SPEED FROM REST (S)	156	
MAXIMUM ASTERN SPEED (KNOTS)	6	
LOCATION AT MAX ASTERN SPEED	06° 53.183'N	079° 46.893'E
DISTANCE TO ACHIEVE MAX ASTERN SPEED	320m	
LOCATION AFTER 10MIN	NA	
DISTANCE TRAVELLED WITHIN 10 MINS	NA	

YARD ENGINEER	OWNER	DNV SURVEYOR

U. M. D. S. Harischandra
 Design Manager (Hull & Outfitting)
 Colombo Dockyard PLC
 (Company No PQ 50)



U. M. D. S. Harischandra
Design Manager (Hull & Outfitting)
Colombo Dockyard PLC
(Company No PQ 50)

[Handwritten signatures]


Colombo Dockyard PLC
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NC0251-STR-008 – sheet 1

NC0251-STR-000 – sheet 1

TURNING CIRCLE TEST			DATE		13/04/2023	
			YARD NO		NC 0251	
LOCATION	Outside Colombo Harbour		SEA STATE		3	
WIND DIRECTION	Westerly		DEPTH OF WATER		46m	
WIND SPEED	3 knots		WEATHER		Sunny	
			TIME		4.55 pm	
VESSEL DRAFT (m)	FWD	3.18	MID	3.6	AFT	4.02

TURNING READINGS AT 100% MCR FOR PORT SIDE TURNING

Sq No.	Turning Angle/ Deg.	Elapsed time (Seconds)	GPS Reading Latitude	GPS Reading Longitude	Ship speed (knots)	Heeling angle/Deg.
1	0	0	06° 50.451'N	079°45.066'E	12	0
2	30	24	06° 50.369'N	079°45.060'E	11.1	2.5
3	60	36	06° 50.337'N	079°45.065'E	10.1	2.5
4	90	47	06° 50.313'N	079°45.082'E	8.6	5.0
5	120	59	06° 50.300'N	079°45.106'E	7.5	5.0
6	150	73	06° 50.300'N	079°45.133'E	6.2	5.0
7	180	88	06° 50.312'N	079°45.156'E	5.7	2.5
8	210	104	06° 50.334'N	079°45.171'E	5.6	2.5
9	240	120	06° 50.360'N	079°45.174'E	5.2	2.5
10	270	136	06° 50.383'N	079°45.165'E	5.4	2.5
11	300	153	06° 50.399'N	079°45.146'E	5.2	2.5
12	330	169	06° 50.403'N	079°45.123'E	5.0	2.5
13	360	184	06° 50.396'N	079°45.104'E	4.9	2.5
14	390	200	06° 50.380'N	079°45.091'E	4.8	01
15	420	216	06° 50.358'N	079°45.088'E	4.8	01
16	450	231	06° 50.339'N	079°45.097'E	4.8	01
17	480	247	06° 50.326'N	079°45.115'E	5.1	2.5
18	510	263	06° 50.325'N	079°45.138'E	5.2	2.5
19	540	280	06° 50.336'N	079°45.160'E	5	01
20	0	297	06° 50.357'N	079°45.175'E	5.1	01

Remarks

YARD ENGINEER	OWNER	DNV SURVEYOR

 U. M. D. S. Harischandra
 Design Manager (Hull & Outfitting)
 Colombo Dockyard PLC
 (Company No PQ 50)



Colombo Dockyard PLC

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NC0251-STR-008 – sheet 2

TURNING READINGS AT 100% MCR FOR STBD SIDE TURNING

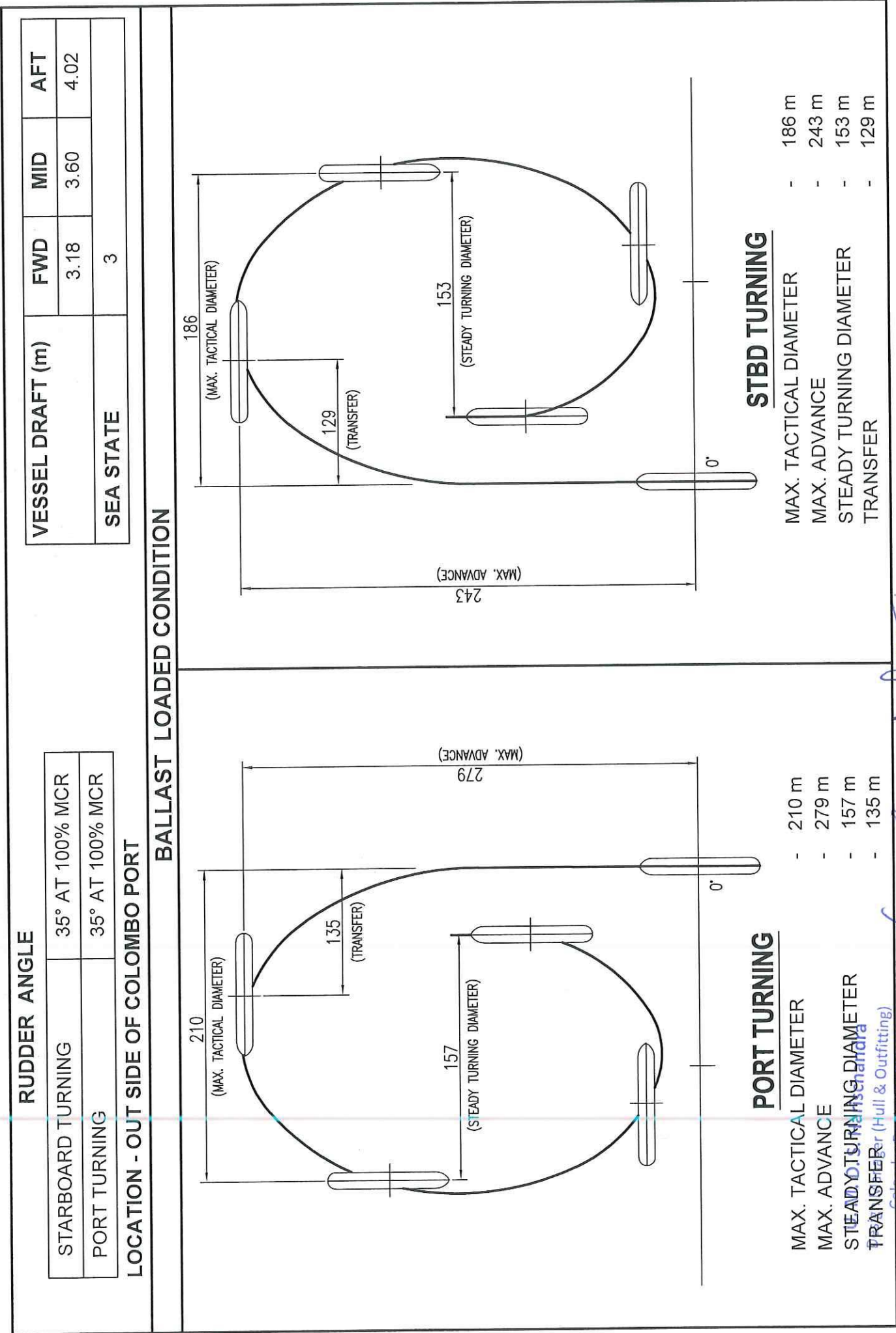
Sq No.	Turning Angle/ Deg.	Elapsed time (Seconds)	GPS Reading Latitude	GPS Reading Longitude	Ship speed (knots)	Heeling angle/Deg.
1	0	0	06° 50.518'N	079°45.754'E	12.3	0
2	540	21	06° 50.522'N	079°45.820'E	12.1	1.0
3	510	32	06° 50.515'N	079°45.852'E	10.7	7.5
4	480	42	06° 50.498'N	079°45.874'E	8.6	5.0
5	450	54	06° 50.476'N	079°45.885'E	7	5.0
6	420	66	06° 50.452'N	079°45.886'E	5.9	2.5
7	390	81	06° 50.434'N	079°45.876'E	5.4	2.5
8	360	96	06° 50.423'N	079°45.860'E	4.9	2.5
9	330	111	06° 50.421'N	079°45.839'E	5.2	1.0
10	300	126	06° 50.429'N	079°45.820'E	5.2	1.0
11	270	140	06° 50.446'N	079°45.808'E	5.3	1.0
12	240	155	06° 50.466'N	079°45.805'E	5.4	01
13	210	169	06° 50.486'N	079°45.812'E	5.1	2.5
14	180	184	06° 50.500'N	079°45.828'E	5.0	2.5
15	150	199	06° 50.504'N	079°45.847'E	5.2	1.0
16	120	214	06° 50.498'N	079°45.866'E	4.7	2.5
17	90	229	06° 50.484'N	079°45.878'E	4.5	0
18	60	245	06° 50.465'N	079°45.881'E	4.4	01
19	30	260	06° 50.446'N	079°45.872'E	5.1	01
20	0	277	06° 50.436'N	079°45.856'E	5.0	01

TURNING DATA

	PORT	STBD
Time when Ordered (hours)	5.00	5.12
Initial vessel Speed (Knots)	12	12.3
Final vessel speed (Knots)	5.1	5.0
Engine rpm - initial	1022	1014
Engine rpm - final	1016	1017
Rudder Angle (Deg)	350	350
Max. Heeling Angle (Deg)	50	7.50
Time for full turn (s)	297	277
Max. Advance (m)	279	243
Max. Tactical Diameter (m)	210	186
Minimum speed During Trial (Knots)	4.8	4.4

YARD ENGINEER	OWNER	DNV SURVEYOR

U. M. D. S. Harischandra
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NC0251-STR-009

ZIG-ZAG MANOEUVRING TRIAL			DATE		13/04/2023	
			YARD NO		NC 0251	
LOCATION	06°50.552'N 079°46.629'E		SEA STATE		3	
WIND DIRECTION	Westerly		DEPTH OF WATER		49m	
WIND SPEED	3 knots		WEATHER		Fair	
HEEL	5°		TIME		1910	
VESSEL DRAFT (m)	FWD	3.18	MID	3.6	AFT	4.02

10/10-Deg ZIGZAG TEST

RUDDER ANGLE	TIME FOR RUDDER ANGLE 10 DEG	TIME FOR HEADING 10 DEG	OVER-SHOOT ANGLE DEG	TIME FOR OVER-SHOOT (s)	RATE OF TURN (DEG/s)	SHIP'S SPEED (KT)	PROP RPM
0-10S	5	18	9°	35	0.53	12.2	165
10S-10P	24	74	12°	95	0.57	11.7	165
10P-10S	81	133	18°	158	0.72	11.1	165
10S-10P	140	209	13°	229	0.65	10.5	165
10P-10S	216	273	18°	299	0.69	10.9	165

20/20-Deg ZIGZAG TEST

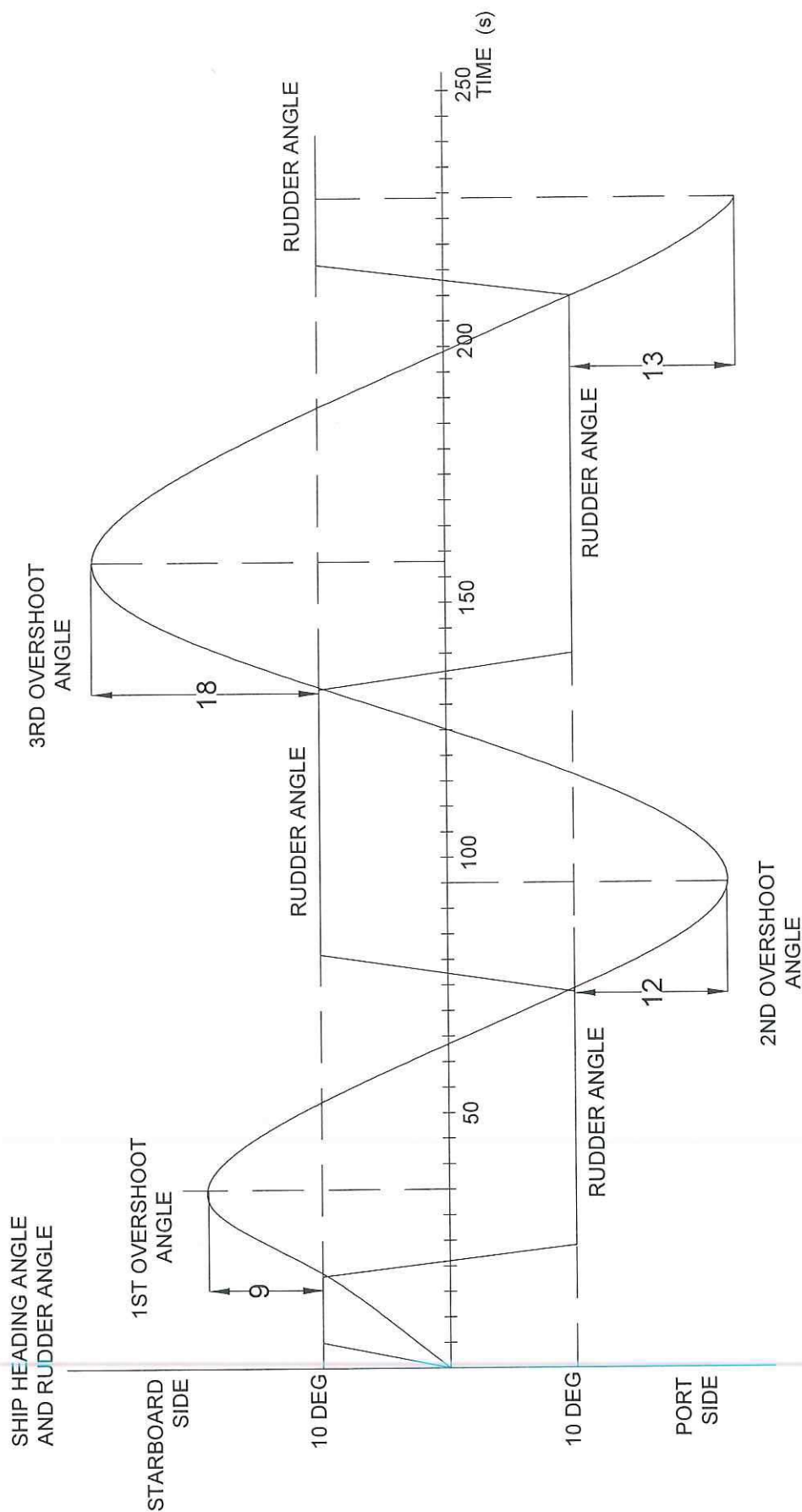
RUDDER ANGLE	TIME FOR RUDDER ANGLE 20 DEG	TIME FOR HEADING 20 DEG	OVER-SHOOT ANGLE DEG	TIME FOR OVER-SHOOT (s)	RATE OF TURN (DEG/s)	SHIP'S SPEED (KT)	PROP RPM
0-20S	6	21	21°	39	1.16	12.2	165
20S-20P	32	83	21°	102	1.1	10.0	165
20P-20S	93	148	23°	169	1.1	9.9	165
20S-20P	159	216	19°	236	0.95	9.2	165
20P-20S	227	280	23°	304	0.96	9.3	165

REMARKS

Note- Graphical representation to be attached for records

YARD ENGINEER	OWNER	DNV SURVEYOR

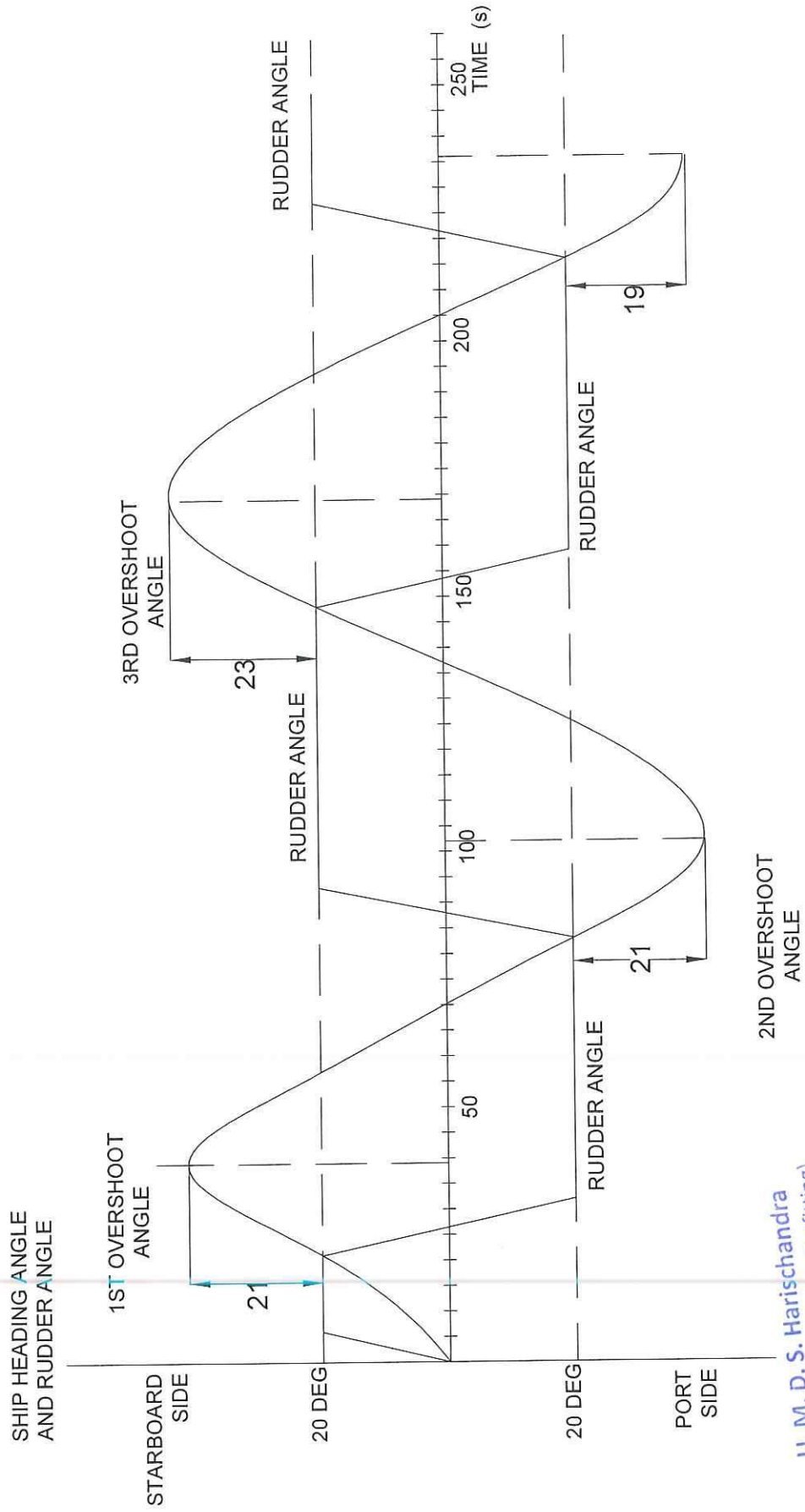
 U. M. D. S. Harischandra
 Design Manager (Hull & Outfitting)
 Colombo Dockyard PLC
 (Company No PQ 50)



10/10- DEGREE ZIG-ZAG MANEUVERING TEST

U. M. D. S. Harschandra
Design Manager (Hull & Outfitting)
Colombo Dockyard PLC
(Company No PQ 50)

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U. M. D. S. Harischandra
Design Manager (Hull & Outfitting)
Colombo Dockyard PLC
(Company No PQ 50)

20/20- DEGREE ZIG-ZAG MANEUVERING TEST

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NC0251-STR-010

NC0251-STR-010									
ENDURANCE TEST GENERAL DATA					DATE		13/04/2023		
					YARD NO		NC251		
TRIAL CONDITION		Calm Sea			SEA STATE		3		
WIND DIRECTION		Westerly			WIND SPEED		3 knots		
LOCATION		Outside Colombo			TIME		2330		
DRAUGHT (m)	FWD		MIDSHIP	AFT	PEOPLE ON BOARD	OWNER	CDL	CLASS	OTHERS
	3.18		3.6	4.02		7	54	1	16

MAIN ENGINE

RATED POWER	RPM	MAKE & TYPE	SERIAL NUMBER	QTY
1600 kW	1000	Wartsila 8L20	XAAC225151	1

GEARING

TYPE	MAKER	GEAR RATIO	PTO POWER	QTY
SCV75-PDC48	Flender GmbH	6.053/1.815	800kW	1

PROPELLER

TYPE	MAKER	NO OF BLADES	DIAMETER/PITCH	QTY
4D920	Wartsila Propulsion (Wuxi) Co.,Ltd	4	3400 mm / CPP	1

GENERATORS

	PRIME MOVER MAKER	GENERATOR MAKER	PRIME MOVER OUTPUT	GENERATOR OUTPUT	FREQ (Hz)	VOLTAGE
DIESEL GEN 1	CAT	Moteurs Leroy Somer	129 kW	118 kWe	60	690
DIESEL GEN 2	CAT	Moteurs Leroy Somer	129kW	118 kWe	60	690
SHAFT GEN	-	MarelliMotori	-	800 kW	40	600

YARD ENGINEER	OWNER	DNV SURVEYOR

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SHIP REPAIRERS, SHIP BUILDERS AND HEAVY ENGINEERS - SRI LANKA

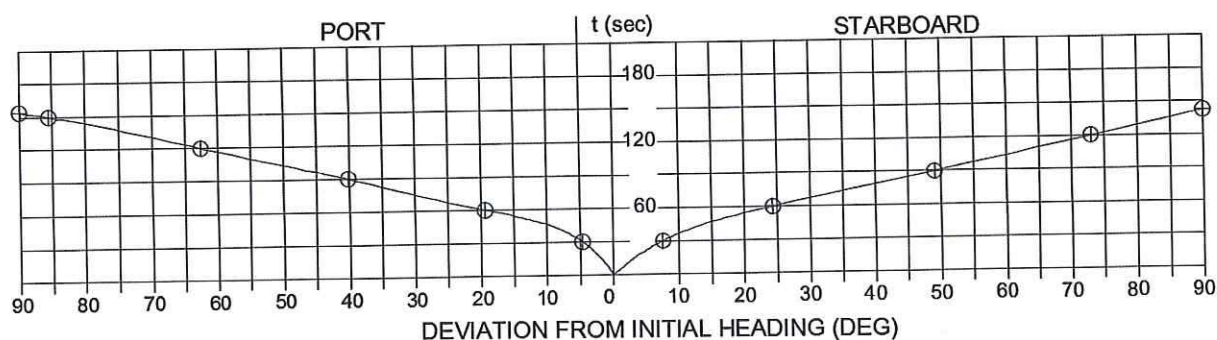
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NC0251-STR-011

THRUSTER TRIALS						DATE	13/04/2023
						YARD No	NC251
LOCATION	Outside Colombo					MODEL	STT170
WEATHER	Fair					MAKE	Schottel
WIND DIRECTION	Westerly					WATER DEPTH	50m
WIND VELOCITY	3 knots					SEA STATE	3
VESSEL DRAFT (m)	FWD	3.18	MID	3.6	AFT	4.02	

MEASUREMENTS		REMARKS
VESSEL SPEED (Knots)	1	
TIME FOR 90° (STBD) COURSE DEVIATION ATTAINED AND THRUST DIRECTION REVERSED. (s)	154	
MAX ELECTRIC CURRENT (A)	294	
TIME FOR 90° (PORT) COURSE DEVIATION ATTAINED AND THRUST DIRECTION REVERSED. (s)	142	
MAX ELECTRIC CURRENT (A)	290	

Time vs Heading



REMARKS

YARD ENGINEER	OWNER	DNV SURVEYOR

 U. M. D. S. Harischandra
 Design Manager (Hull & Outfitting)
 Colombo Dockyard PLC
 (Company No PQ 50)



Colombo Dockyard PLC

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NC0251-STR-012

PULL-OUT TRIALS						DATE	13/04/2023
						YARD No	NC251
LOCATION	Outside Colombo					WEATHER	Fair
WIND DIRECTION	Westerly					WATER DEPTH	44m
WIND VELOCITY	3 knots					SEA STATE	3
VESSEL DRAFT (m)	FWD	3.18	MID	3.6	AFT	4.02	

PROPELLER SPEED - 165

PROPELLER PITCH - 81

SHIP SPEED - 12.3 knots

RUDDER ANGLE - 20 deg

TIME	STBD SIDE (deg)	PORT SIDE (deg)
0 min	213	0
20 s	232	345
40 s	271	308
1 min	307	270
20 s	327	248
40 s	343	234
2 min	354	223
20 s	1	216
40 s	7	213
3 min	12	212

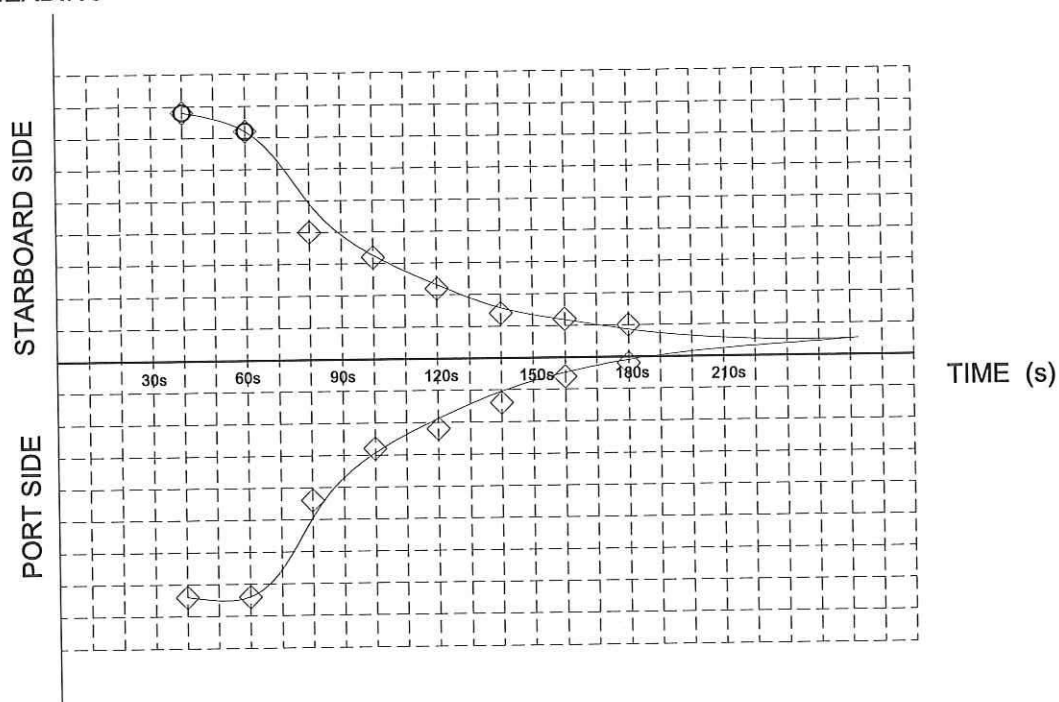
YARD ENGINEER	OWNER	DNV SURVEYOR

U. M. D. S. Harischandra
Design Manager (Hull & Outfitting)
Colombo Dockyard PLC
(Company No PQ 50)


Colombo Dockyard PLC

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RATE OF CHANGE OF HEADING



DATA PLOT FOR PULLOUT MANEUVERING TEST YARD NO NC/0251

YARD ENGINEER	OWNER	DNV SURVAYOR

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NC0251-STR-013

MAN-OVERBOARD TRIAL						DATE	13/04/2023
						YARD No	NC 0251
LOCATION	Outside Colombo					WEATHER	Fair
WIND DIRECTION	Westerly					WATER DEPTH	48m
WIND VELOCITY	3 knots					SEA STATE	3
VESSEL DRAFT (m)	FWD	3.18	MID	3.6	AFT	4.02	

PARAMETERS	INITIAL READINGS	FINAL READINGS
BASE COURSE HEADING (DEG)	089 ⁰	273 ⁰
PROPELLER PITCH (%)	77%	78%
VESSEL SPEED (KNOTS)	12.1	10.1
ENGINE RPM	1018	1002
SHAFT RPM	165	165
INITIAL DGPS POSITION	06 ⁰ 51.950'N 079 ⁰ 47.880'E	06 ⁰ 51.959'N 079 ⁰ 47.964'E

PARAMETER	VALUE	REMARKS
TIME FOR CHANGE HEADING 70 ⁰ (S)	41	
TIME FOR CHANGE HEADING 180 ⁰ (S)	229	
TIME TO REACH INITIAL POSITION (S)	322	
DISTANCE BETWEEN INITIAL AND FINAL POSITION (m)	160	

YARD ENGINEER	OWNER	DNV SURVEYOR

U. M. D. S. Harişchandra
 Design Manager (Hull & Outfitting)
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NC0251-STR-014- sheet 1

ANCHOR TEST	DATE	12/04/2023
	YARD No	NC 0251

OPERATIONAL TEST
ANCHOR

WEIGHT / Kg	NO OF SETS	CHAIN DIA./mm	CHAIN LENGTH / m		
2280	02	36	467.5		
Location	06°44.640'N 079°37.776'E	Depth	220	Weather	Fair
Sea State	3	Wind Speed	6ms ⁻¹	Wind Direction	Westerly
Anchor Housing Condition	Good	Anchor Dropping Condition	Good	Chain Holding Condition	Firmly Hold
Anchor Hoisting Condition	Good	Running and Braking Condition	Good	Windlass Serial No	1LE0003-2AC59-0FA4-Z

Cable lifter brake test (Lowering)	Test Status
Port side	Satisfactory
Stbd side	Satisfactory

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-014- sheet 2

Loading Test (Hoisting)		Measured length (m)	Time Recorded (s)	Max. current (amp)	Speed (m/min)
Port side	Shackle 4~Shackle 3	27.5	111	15	14.90
	Shackle 3~Shackle 2	27.5	111	14	14.90
	Shackle 2~Shackle 1	27.5	117	12	14.10
	Average speed (m/min)				
Stbd side	Shackle 4~Shackle 3	27.5	110	16	15.03
	Shackle 3~Shackle 2	27.5	110	14	15.03
	Shackle 2~Shackle 1	27.5	108	12	15.30
	Average speed (m/min)				
Hoisting up one length of chain together on both sides (Shackle 2~Shackle 1)		27.5	112	17	14.70

Current Measurement			
		PORT (Amp)	STBD (Amp)
Running Current (A)		7	7
Load current (A)	Hoisting	14	14
	Lowering	8	8

	Satisfactory (yes/no)	Remarks
Anchor chain washing operation	Yes	
Anchor seating	Yes	
Chain stopper condition	Yes	

Remarks

YARD ENGINEER	OWNER	DNV SURVEYOR

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NC0251-STR-017

HARMONIC MEASUREMENT OF 690VAC MSB

Description		THD (%)	Remarks
Aux Generators are running (Batteries in Peak Shaving mode)		1.89	External device
PTH- Main engine is not running, Aux Gens online and supplying the SG Motor together with the Batteries	Bow Thruster in operation	1.87	External device
	Bow Thruster not in operation	1.78	External device
PTH- Main engine is not running, Batteries are supplying the SG Motor and 690Vac MSB	Bow Thruster in operation	2	IAS SWBD mimic
	Bow Thruster not in operation	2	IAS SWBD mimic
PTO- Shaft Gen running (Batteries in Peak Shaving mode) supplying 690Vac MSB		1.93	External device
Gen Set Mode (PTO is charging battery, no Aux Gen online)		1.95	External device
PTI Motor Mode		1.97	External device
Sailing Mode – 1 (PTO) Diesel		2.04	
Sailing Mode – 1 (Boost)		2.16	

REMARKS

YARD ENGINEER	OWNER	DNV SURVEYOR

 U. M. D. S. Harischandra
 Design Manager (Hull & Outfitting)
 Colombo Dockyard PLC
 (Company No PQ 50)



PM

Pilot Card

Signerad av

Signerad datum

Enhet

Polisregion Väst, Sjöpolis 1 Rgn Väst

Diarienumr

5000-K809967-26

Uppgiftslämnare

Henrik Norlin

Datum

2026-08-26

Tid

12:22

Beslag verkställt

Nej

Material för analys

Nej

Mottaget

Mottaget datum

Tid

Sätt på vilket uppgift lämnats

Upprättad av

Henrik Norlin

Uppgiften avser

Uppgift

I samband med slutdelgivning och genomgång av FUP 2026-08-25 uppgav Alexey Kudrin att han önskade att fartygsspecifika uppgifter om t.ex. stoppsträcka etc skulle tas med i protokollet. Vid kontroll av kriminalteknikernas foton från undersökningen av bryggan på Misje Verde återfanns en bild på information anslaget på bryggan, ett s.k. Pilot Card där det framgår tid från full fart framåt till full fart bakåt etc.

Detta foto biläggs till detta PM. Bild 1 visar originalfotot. Bild 2 samt 3 visar läsbar uppförstoring av den anslagna informationen på bild 1.

/pinsp H Norlin



Bild 2.

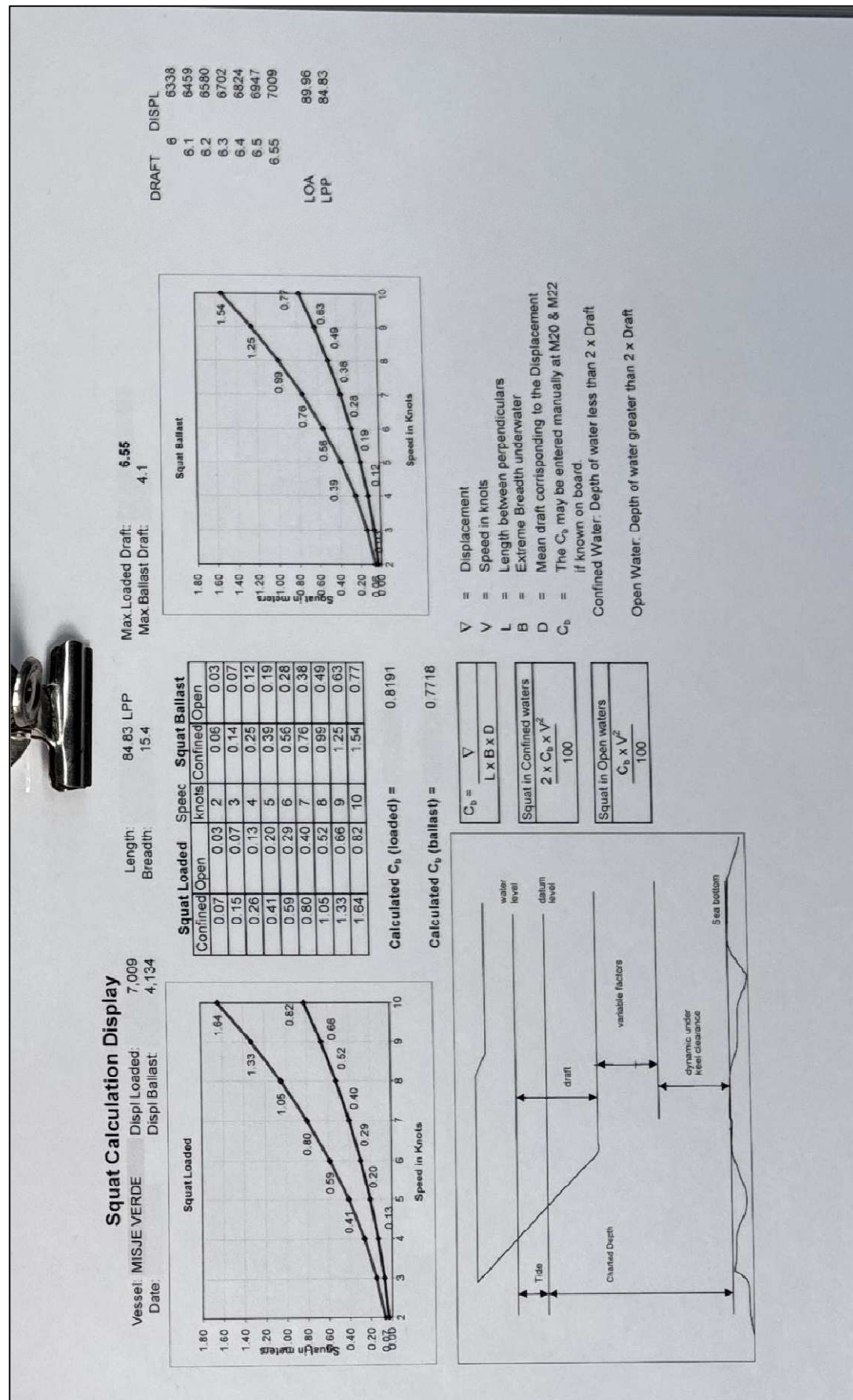


Bild 3.



Tjänsteanteckning

Inhämtning av begärd komplettering

Signerad av

Signerad datum

Enhet

Polisregion Väst, Sjöpolis 1 Rgn Väst

Diariernr

5000-K809967-26

Uppgiftslämnare

Henrik Norlin

Datum

2026-08-27

Tid

14:25

Beslag verkställt

Nej

Material för analys

Nej

Mottaget

Mottaget datum

Tid

Sätt på vilket uppgift lämnats

Upprättad av

Henrik Norlin

Involverade personer

Personnummer/Orgnr

Roll

Hammarskär, Fredrik

Berörd person

Uppgiften avser

Uppgift

I samband med slutdelgivning har adv Håkansson samt F Hammarskär begärt inhämtande av arbets- och vilotider beträffande kapten Alexey Kudrin. Begäran har ställts till rederiet men vid detta protokolls färdigställande har svar ej inkommit. Då detta kommer redovisas det i tilläggsprotokoll 3 (TP3).

/pinsp H Norlin



Polisen

67

PM

Vakt / vilo-schema Misje Verde

Signerad av

Signerad datum

Enhet

Polisregion Väst, Sjöpolis 1 Rgn Väst

Diariernr

5000-K809967-26

Uppgiftslämnare

Henrik Norlin

Datum

2026-08-27

Tid

07:15

Beslag verkställt

Nej

Material för analys

Nej

Mottaget

Mottaget datum

Tid

Sätt på vilket uppgift lämnats

Upprättad av

Henrik Norlin

Uppgiften avser

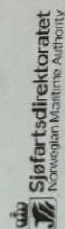
Uppgift

Begäran om komplettering inkom under slutdelgivningen från adv Håkansson. Begäran avsåg inhämtande av arbetstidsjournal/vilotidsjournal för kapten Kudrin den sista veckan innan olyckan. Begäran om komplettering inkom 2026-08-26 kl 18:25.

Kapten Kudrins vaktschema hade fotograferats av polisens kriminaltekniker vid kriminaltekniska undersökningen av Misje Verde. Bifogas detta PM.

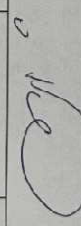
/pinsp H Norlin

-Radius



Misje Rederi AS

Model format table of shipboard working arrangements¹

Name of ship:		m/s Misje Verde		Signal letters:	
Flag of ship:		Norway		LAQT8	
Latest update of table:		10-Jul-2026		IMO-number, if any:	
				Page 1 of 2	
The minimum hours of rest are applicable in accordance with The Ship and Security Act of 16. February 2007 No. 9 relating to hours of work and hours of rest on board ship issued in conformity with ILO's MLC 2006 Convention (No. 186) and with any applicable collective agreement registered or authorized in accordance with that Convention and with the International Convention on standards of training, certification and watchkeeping for seafarers, as amended, (STCW Convention) ² .					
Minimum hours of rest:					
Position/rank	Scheduled daily work hours at sea		Scheduled daily work hours in port		Total daily rest hours
	Watchkeeping (from-to)	Non-watchkeeping duties (from-to)	Watchkeeping (from-to)	Non-watchkeeping duties (from-to)	
Master	07:00 - 12:00; 17:00 - 24:00			07:00 - 12:00; 17:00 - 24:00	At sea 12 In ports 12
Chief Officer	06:00 - 07:00; 12:00 - 17:00			09:00 - 07:00; 12:00 - 17:00	12
Chief Engineer		08:00 - 12:00; 13:00 - 17:00		08:30 - 12:00; 13:30 - 17:00	16
Able Seaman / Exdriver		08:00 - 12:00; 13:00 - 17:00		07:00 - 12:00; 17:00 - 24:00	16
Able Seaman / Exdriver		08:00 - 12:00; 13:00 - 17:00		06:00 - 07:00; 12:00 - 17:00	12
Able Seaman	22:00 - 02:00	09:00 - 12:00; 13:00 - 16:00	07:00 - 12:00; 17:00 - 24:00		16
Able Seaman	02:00 - 05:00	13:00 - 17:00	09:00 - 07:00; 12:00 - 17:00		12
Cook / Able Seaman	up to master's order	07:00 - 13:00; 15:00 - 18:00	up to master's order	07:00 - 13:00; 16:00 - 18:00	16
Signature of Master: 					

1. The terms used in this model table of directive 1999/95/EC annex I, are to appear in the working language of the ship and in English

2. See overleaf for selected extracts from ILO Convention No 186 and the STCW Convention.

3. For those positions/ranks that also are listed in the ship's safe manning document, this terminology used should be the same as in that document

4. For watchkeeping personnel, the comment section may be used to indicate the anticipated number of hours to be devoted to unscheduled work and any such hours should be included in the appropriate total daily work hours column).

KS-0301 E (2022.08 NMD)

1

Vaktschema / vilotidsschema Misje Verde – fotograferat av polisens kriminaltekniker i samband med kriminaltekniska undersökningen av Misje Verde.



Polisen

69

PM

Visualisering i GeoTime av fartygens rörelser

Signerad av

Signerad datum

Enhet

Polisregion Väst, Sjöpolis 1 Rgn Väst

Diariernr

5000-K809967-26

Uppgiftslämnare

Henrik Norlin

Datum

2026-08-27

Tid

14:08

Beslag verkställt

Nej

Material för analys

Nej

Mottaget

Mottaget datum

Tid

Sätt på vilket uppgift lämnats

Upprättad av

Henrik Norlin

Uppgiften avser

Uppgift

Positionsdata har inhämtats avseende Misje Verde genom det myndighetsgemensamma sjö-övervakningssystemet Sjöbasis där fartygets AIS positionerar fartyget på sjökortet.

Positionsdata har avseende fritidsbåtarna Doris samt Elsa har inhämtats från navigeringstjänsten Skippo som brukats av besättningen på båda båtarna. I denna tjänst är det mobiltelefonerna som används ombord som positionerar båtarna.

Under förhör med F Hammarskär samt A Kudrin har dessa positioner förevisats i programvaran Geotime där bakgrunden är en topografisk karta. Samma positioner har med hjälp av Kustbevakningen överförts till Sjöbasis där bakgrunden är ett sjökort (se separat PM i Tilläggsprotokoll 1).

I denna visualisering tas ej hänsyn till fartygens storlek eller positionsangivarens placering på fartyget. Doris symboliseras med en röd båt, Elsa med en grå båt och Misje Verde med en grön båt.

Se bilaga till detta PM med skärmsklipp ur visualiseringen i GeoTime, dvs den film som förevisats under förhör med misstänkta.

/pinsp H Norlin

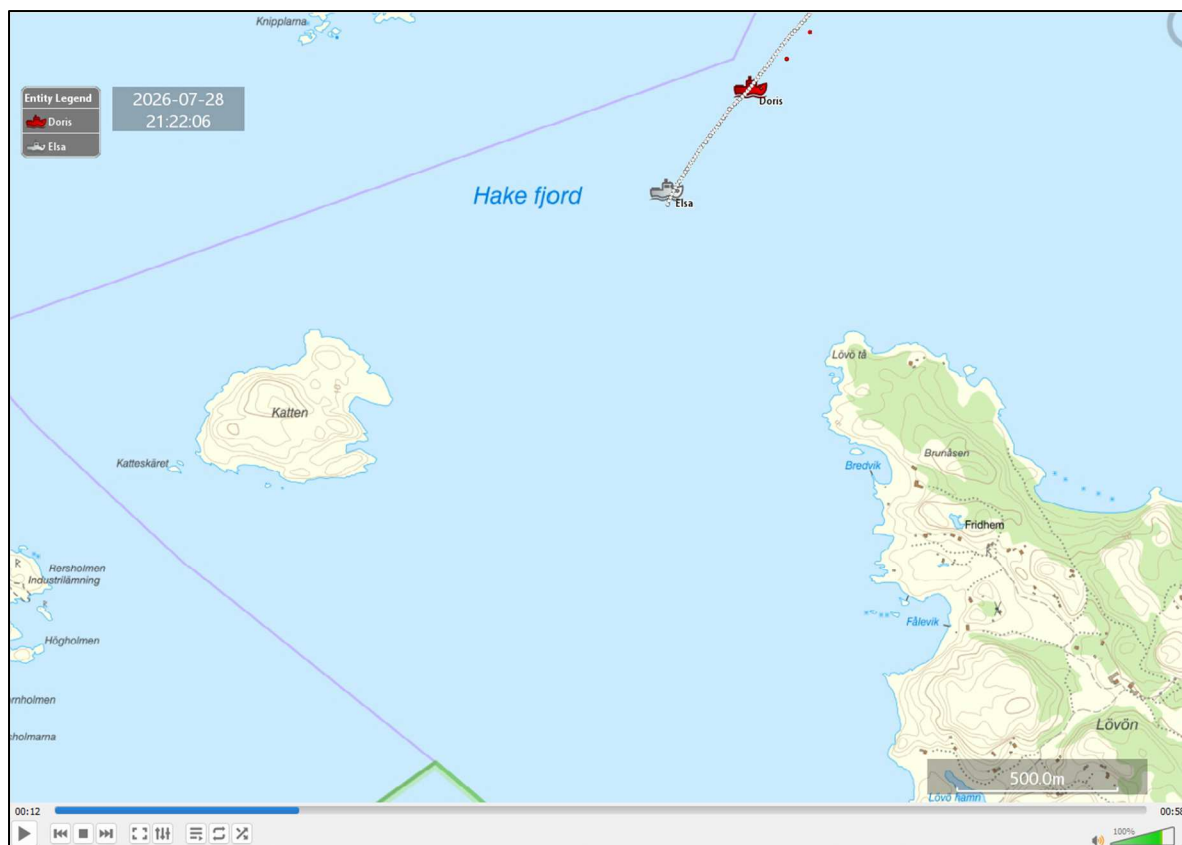


Bild 1. 2026-07-28 kl 21:22:06.

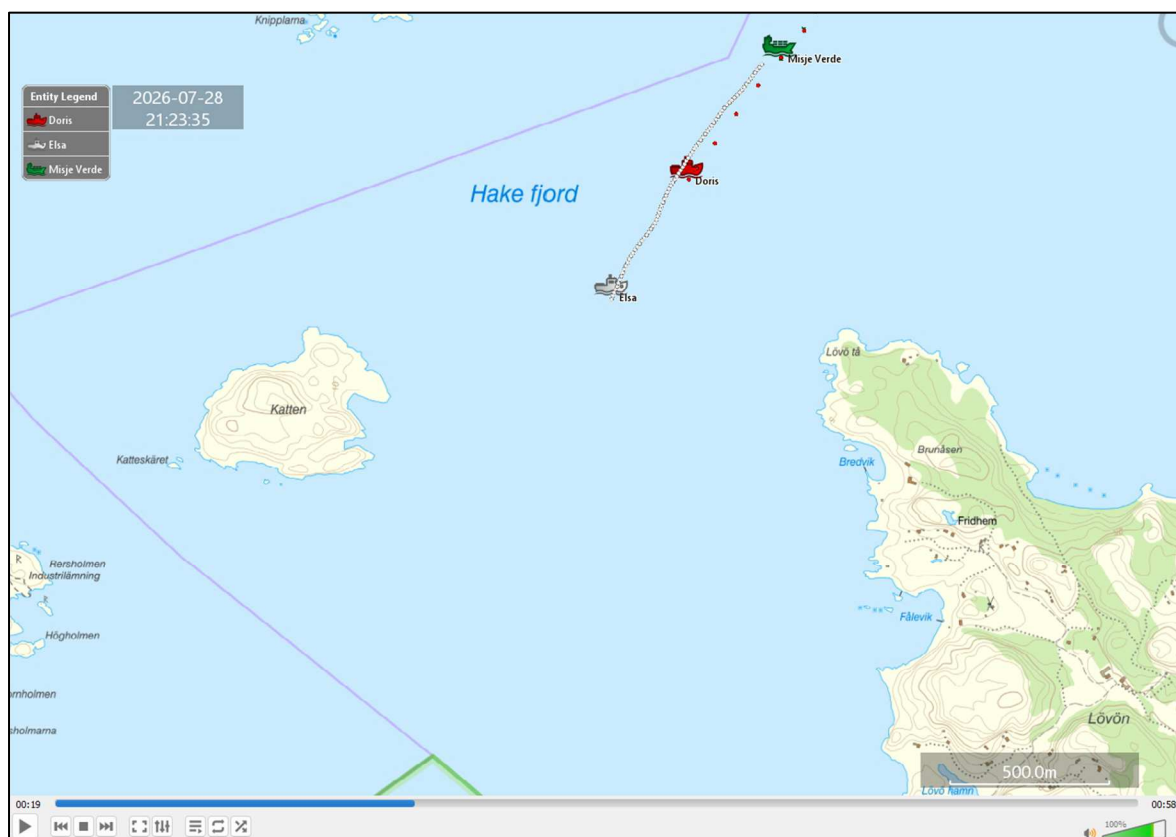


Bild 2. 2026-07-28 kl 21:23:35.

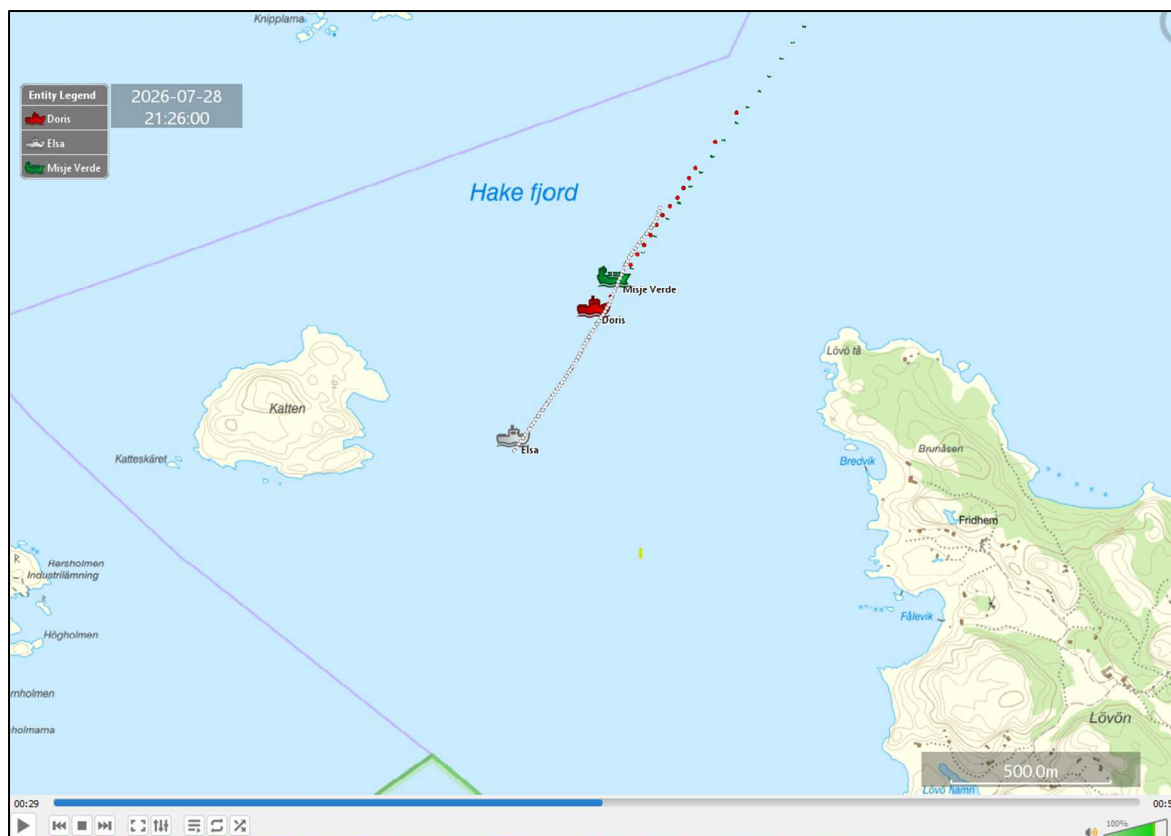


Bild 3. 2026-07-28 kl 21:26.

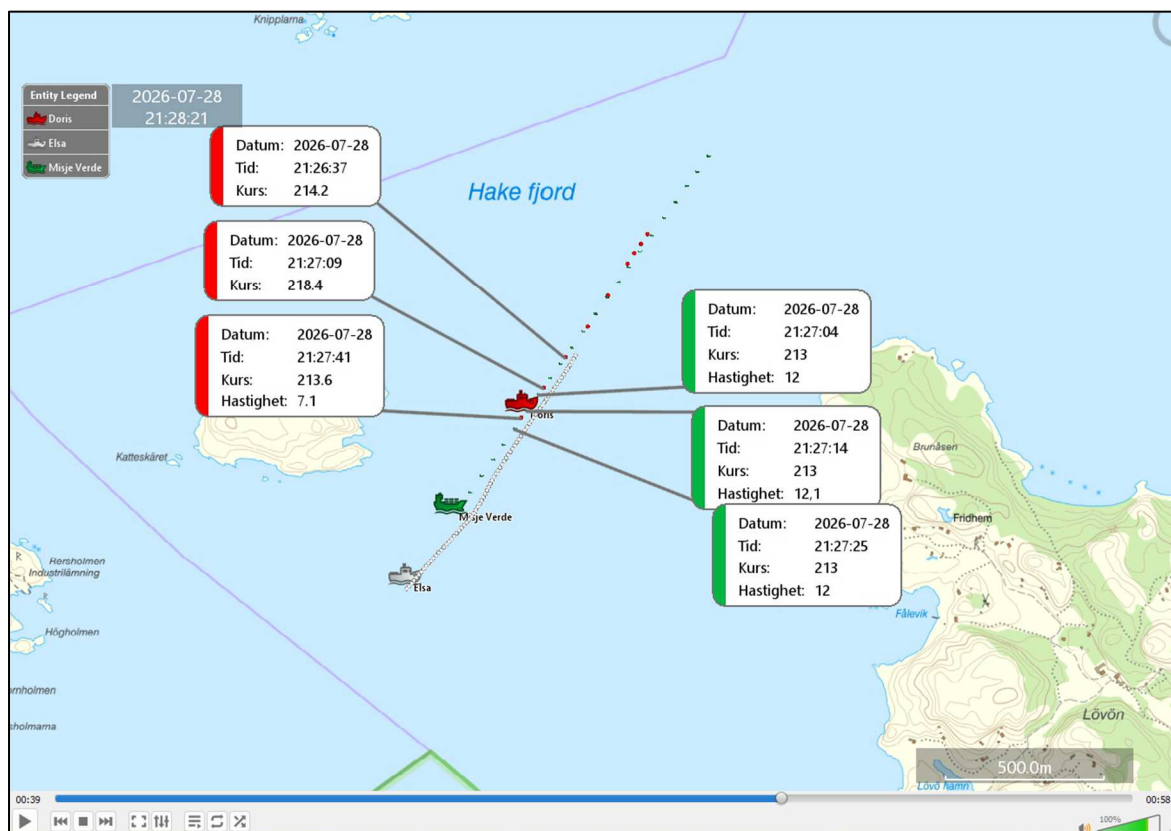


Bild 4. 2026-07-28 kl 21:28:21. Bubblor med röd färg ger information om Doris, bubblor med grön färg ger information om Misje Verde.

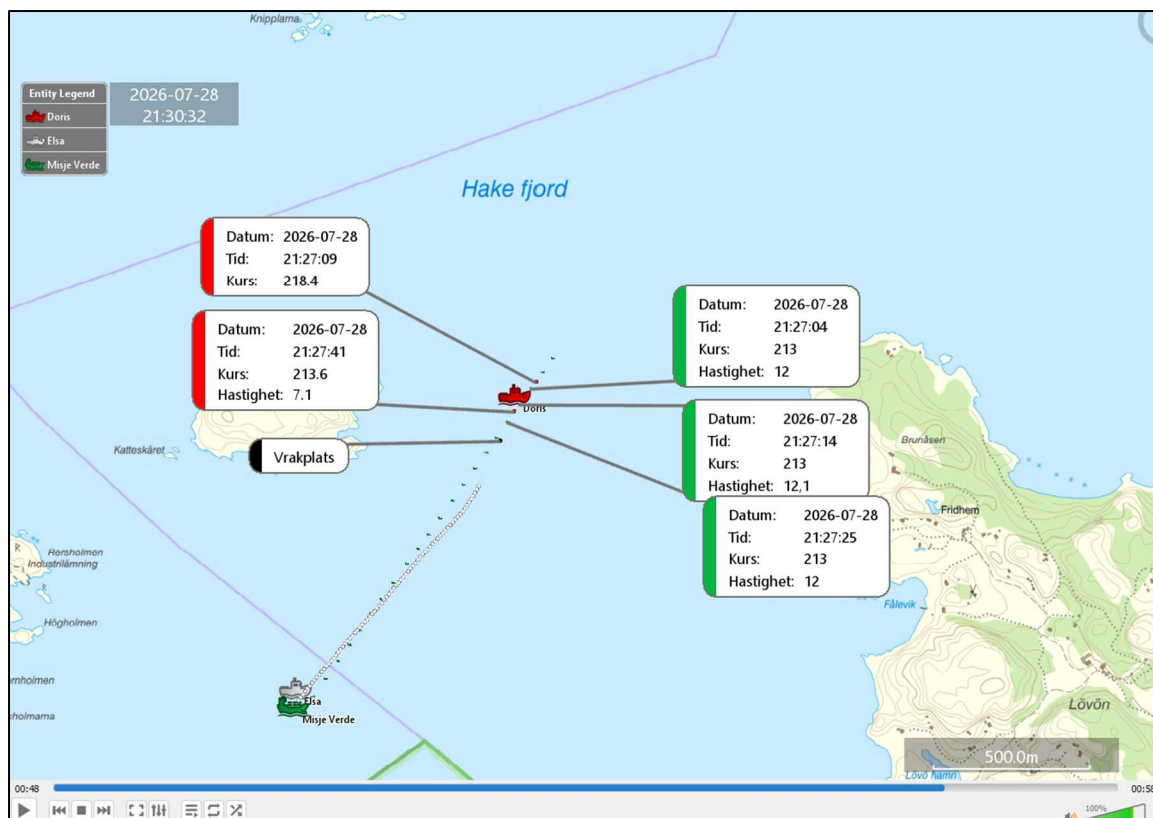


Bild 5. 2026-07-28 kl 21:30:32. Plats för anträffande av Doris då hon förlist är markerat i bubbla med svart färg.

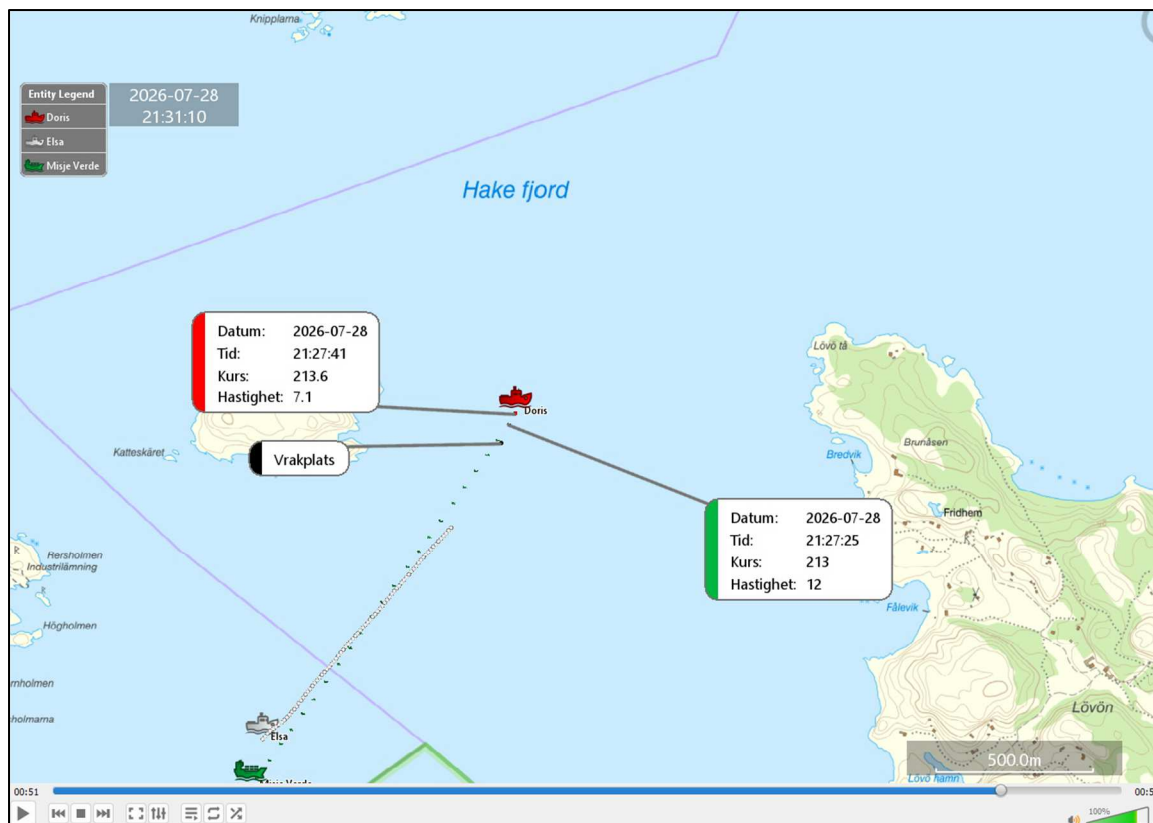


Bild 6. 2026-07-28 kl 21:31:10.



Tjänsteanteckning

Rättelse - privata bilder på fritidsbåtarna

Signerad av

Signerad datum

Enhet

Polisregion Väst, Sjöpolis 1 Rgn Väst

Diariernr

5000-K809967-26

Uppgiftslämnare

Henrik Norlin

Datum

2026-08-26

Tid

13:03

Beslag verkställt

Nej

Material för analys

Nej

Mottaget

Mottaget datum

Tid

Sätt på vilket uppgift lämnats

Upprättad av

Henrik Norlin

Uppgiften avser

Uppgift

Jag har upprättat PM:et Privata bilder av fritidsbåtarna Doris och Elsa (s 124 ff i huvudprotokollet). Jag uppmärksammades på att de bilder som finns avseende båten Elsa på sid 130 - 131 (bilderna 6 -7) INTE är tagna av Ellinor Olsson som är noterat i PM:et utan av polisen Cecilia Alexandersson. För rättelse.

/pinsp H Norlin



Bilaga - Skäligen misstänkt

Enhet
Polisregion Väst, Sjöpolis 1 Rgn Väst

Diariernr
5000-K809967-26

Skäligen misstänkt person

Hammarskär, Fredrik Karl

Personnr

19840418-6010

Identifierad

Ja

Kontroll sätt

Dataslagning

Kommentar

Passfoto i RES



Bilaga - Skäligen misstänkt

Enhet
Polisregion Väst, Sjöpolis 1 Rgn Väst

Diariet
5000-K809967-26

Skäligen misstänkt person

Kudrin, Alexey

Personnr

19790322-

Identifierad

Ja

Kontroll sätt

Pass (utländskt)

Kommentar

Personalia och dagsbotsuppgift

Utskriftsdatum
2026-08-27

Namn Kudrin, Alexey		Personnummer 19790322-	
Tilltalsnamn	Kallas för	Öknamn	Kön Man
Födelseförsamling	Födelselän	Födelseort utland	
Medborgarskap Ryssland	Hemvistland	Telefonnr 4790724151: Mobiltelefon	
Postadress			
Folkbokföringsort			
Föräldrars/Vårdnadshavares namn och adress (beträffande den som inte fyllt 20 år)			
Utbildning			
Yrke / Titel			
Arbetsgivare		Telefonnr	
Anställning (nuvarande och tidigare)			
Arbetsförhet och hälsotillstånd			
Kompletterande uppgifter			
Muntliga uppgifter från misstänkt			
Årsinkomst	Varav bidrag	Förmögenhet	Skulder
Hemmavarande barn under 18 år		Försörjningsplikt för barn under 21 år utöver hemmavarande barn	
Inkomstkontroll			
Fastställd förvärvsinkomst		För inkomstår	
Kontrolldatum - -			
Övrigt			
Övriga anteckningar			



Underrättelse/Delgivning jml RB 23:18a

Enhet
Polisregion Väst, Sjöpolis 1 Rgn Väst

Ärende

Diariennr
5000-K809967-26

Underrättad av
Henrik Norlin

Gärning

Vållande till annans död Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vållande till annans död Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vållande till kroppsskada Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vållande till kroppsskada Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vårdslöshet i sjötrafik Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04

Berörd person

Personnr
19790322-

Efternamn
Kudrin

Förnamn
Alexey

Underrättelsesätt
Muntlig underrättelse

Datum för muntlig underrättelse
2026-08-27

Yttrande senast (rådrum)

Notering
Överlämnat till häktet.

Resultat av slutunderrättelse
Har inte avhörts

Information gällande erinran

Försvare

Namn
Tuula, Taavi

Underrättelsesätt
Muntlig underrättelse

Datum för muntlig underrättelse
2026-08-27

Yttrande senast (rådrum)

Notering
Mejlat till försvarare.

Resultat av slutunderrättelse
Har inte avhörts

Information gällande erinran



Underrättelse/Delgivning jml RB 23:18a

Enhet
Polisregion Väst, Sjöpolis 1 Rgn Väst

Ärende

Diariennr
5000-K809967-26

Underrättad av
Henrik Norlin

Gärning

Vållande till annans död Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vållande till annans död Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vållande till kroppsskada Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vållande till kroppsskada Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04
Vårdslöshet i sjötrafik Fullbordat, Älgön Kode, mellan 2026-07-28 21:20 och 2026-07-28 22:04

Berörd person

Personnr
19840418-6010

Efternamn
Hammariskär

Förnamn
Fredrik Karl

Underrättelsesätt
Muntlig underrättelse

Datum för muntlig underrättelse
2026-08-27

Yttrande senast (rådrum)

Notering
Mailat till försvarare

Resultat av slutunderrättelse
Har inte avhört

Information gällande erinran

Försvarare

Namn
Håkansson, Thomas

Underrättelsesätt
Muntlig underrättelse

Datum för muntlig underrättelse
2026-08-27

Yttrande senast (rådrum)

Notering
Mejlat till försvarare.

Resultat av slutunderrättelse
Har inte avhört

Information gällande erinran