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Rpt. 4b

Date of writing report 22nd January, 1958. Received London 127 JAN 1958 Port of Stockholm No. 11361  
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On vessel 27

# FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 41731 Name Single Screw Motorship "FREDRIKA" Gross tons  
Owners Rederi A/B Fredrika Managers Eric Högberg Port of Registry Stockholm  
Hull built at Stockholm By A/B Finnboda Varf Yard No. 368 When 1957 12  
Main Engines made at Gothenburg By Eriksbergs Mek. Verkstads A/B Eng. No. 782 When 1957  
Leaving made at By  
Donkey boilers made at By Blr. Nos. When  
Machinery installed at Stockholm By A/B Finnboda Varf When 1957 12

Particulars of restricted service of ship, if limited for classification None  
Particulars of vegetable or similar cargo oil notation, if required None  
Is ship to be classed for navigation in ice? Yes Is ship intended to carry petroleum in bulk? No  
Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? Yes Type of refrigerant Freon 12  
Is the refrigerating machinery compartment isolated from the propelling machinery space? No Is the refrigerated cargo installation intended to be classed? Yes

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other signs of doubtful meaning are not to be used. Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that report need not be repeated below, but the port and report number should be stated.

No. of main engines 1 No. of propellers 1 Brief description of propulsion system Diesel engine direct driving a propeller.

## MAIN RECIPROCATING ENGINES. Licence Name and Type No.

No. of cylinders per engine Dia. of cylinders stroke(s) 2 or 4 stroke cycle Single or double acting

Maximum approved BHP per engine at RPM of engine and RPM of propeller.

Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure Machinery numeral

Are the cylinders arranged in Vee or other special formation? If so, number of crankshafts per engine

TWO STROKE ENGINES. Is the engine of opposed piston type? If so, how are upper pistons connected to crankshaft?

Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? No. and type of mechanically driven scavenge pumps or blowers per engine and how driven

No. of exhaust gas driven scavenge blowers per engine Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action?

If a stand-by or emergency pump or blower is fitted, state how driven El. driven. No. of scavenge air coolers Scavenge air pressure at full power

Are scavenge manifold explosion relief valves fitted?

FOUR STROKE ENGINES. Is the engine supercharged? Are the undersides of the pistons arranged as supercharge pumps? No. of exhaust gas driven blowers per engine

No. of supercharge air coolers per engine Supercharge air pressure Can engine operate without supercharger?

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel Inlet Exhaust Starting Safety

Material of cylinder covers Material of piston crowns Is the engine equipped to operate on heavy fuel oil?

Cooling medium for :—Cylinders Pistons Fuel valves Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? Is welded construction employed for: Bedplate? Frames? Entablature? Is the crankcase separated from the underside of pistons?

Is the engine of crosshead or trunk piston type? Total internal volume of crankcase No. and total area of explosion relief devices

Are flame guards or traps fitted to relief devices? Is the crankcase readily accessible? If not, must the engine be removed for overhaul of bearings, etc?

Is the engine secured directly to the tank top or to a built-up seating? How is the engine started?

Can the engine be directly reversed? If not, how is reversing obtained?

Has the engine been tested working in the shop? How long at full power?

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system State barred speed range(s), if imposed for working propeller For spare propeller

Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?

Where positioned? No. of main bearings Are main bearings of ball or roller type?

Distance between inner edges of bearings in way of crank(s) Distance between centre lines of side cranks or eccentrics of opposed piston engines

Crankshaft type: Built, semi-built, solid. (State which)

Diameter of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs

Side Pins Minimum

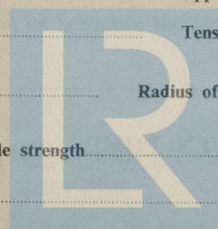
If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Approved

Webs Tensile strength

Diameter of flywheel Weight Are balance weights fitted? Total weight Radius of gyration

Diameter of flywheel shaft Material Minimum approved tensile strength

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which)



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# MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines \_\_\_\_\_ Open or closed cycle \_\_\_\_\_ BHP per set \_\_\_\_\_ at \_\_\_\_\_ RPM of output shaft \_\_\_\_\_

How is drive transmitted to propeller shaft? \_\_\_\_\_

ARRANGEMENT OF TURBINES. HP drives \_\_\_\_\_ at \_\_\_\_\_ RPM HP gas inlet temperature \_\_\_\_\_ pressure \_\_\_\_\_

IP drives \_\_\_\_\_ at \_\_\_\_\_ RPM IP gas inlet temperature \_\_\_\_\_ pressure \_\_\_\_\_

LP drives \_\_\_\_\_ at \_\_\_\_\_ RPM LP gas inlet temperature \_\_\_\_\_ pressure \_\_\_\_\_

No. of air compressors per set \_\_\_\_\_ Centrifugal or axial flow type? \_\_\_\_\_ Material of turbine blades \_\_\_\_\_ Material of compressor blades \_\_\_\_\_

No. of air coolers per set \_\_\_\_\_ No. of heat exchangers per set \_\_\_\_\_ How are turbines started? \_\_\_\_\_

How is reversing effected? \_\_\_\_\_ Are the turbines operated in conjunction with free piston gas generators? \_\_\_\_\_

Total No. of free piston gas generators \_\_\_\_\_ Diameter of working pistons \_\_\_\_\_ Diameter of compressor pistons \_\_\_\_\_ No. of double strokes per minute at full power \_\_\_\_\_ Gas delivery pressure \_\_\_\_\_ Gas delivery temperature \_\_\_\_\_ Have the turbines and attached equipment been tested working in the shop? \_\_\_\_\_ How long at full power? \_\_\_\_\_

## ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators \_\_\_\_\_ KW per generator \_\_\_\_\_ at \_\_\_\_\_ RPM AC or DC? \_\_\_\_\_ Position \_\_\_\_\_

No. of propulsion motors \_\_\_\_\_ SHP per motor \_\_\_\_\_ at \_\_\_\_\_ RPM Position \_\_\_\_\_

How is power obtained for excitation of generators? \_\_\_\_\_ Motors? \_\_\_\_\_

## REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type? \_\_\_\_\_ If single, position of gear thrust bearing \_\_\_\_\_ Is gearing of epicyclic type? \_\_\_\_\_

PCD of pinions: First reduction \_\_\_\_\_ Second reduction \_\_\_\_\_ PCD of wheels: First reduction \_\_\_\_\_ Main \_\_\_\_\_

Material of pinions \_\_\_\_\_ Tensile strength \_\_\_\_\_ Material of wheel rims \_\_\_\_\_ Tensile strength \_\_\_\_\_

Are gear teeth surface hardened? \_\_\_\_\_ How are teeth finished? \_\_\_\_\_ Diameter of pinion journals \_\_\_\_\_ Wheel shaft \_\_\_\_\_

journals \_\_\_\_\_ Are the wheels of welded construction? \_\_\_\_\_ Is gearcase of welded construction? \_\_\_\_\_ Has the wheel/gearcase been heat treated on completion of welding? \_\_\_\_\_ Where is the propeller thrust bearing located? \_\_\_\_\_ Are gear bearings of ball or roller type? \_\_\_\_\_

## CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give brief description and, for clutches, state how operated.

Can the main engine be used for purposes other than propulsion when declutched? \_\_\_\_\_ If so, what? \_\_\_\_\_

## STRAIGHT SHAFTING. Diameter of thrustshaft 400 mm ✓ Got. Rpt. No. 23394. Material \_\_\_\_\_ Minimum approved tensile strength Got. Rpt. No. 23394

Shaft separate or integral with crank or wheel shaft? Got. Rpt. 23394 Diameter of intermediate shaft 299 mm ✓ Material S.M. ingot steel.

Minimum approved tensile strength 44 kg/mm<sup>2</sup> Diameter of screwshaft cone at large end 375 mm ✓ Is screwshaft fitted with a continuous liner? Yes ✓

Diameter of tube shaft. (If these are separate shafts) None ✓ Is tube shaft fitted with a continuous liner in way of stern tube \_\_\_\_\_ Thickness of screwshaft liner at bearings 19 mm ✓ Thickness between bearings 19 mm ✓ Material of screwshaft S.M. ingot steel. Minimum approved tensile strength 44 kg/mm<sup>2</sup>

Is an approved oil gland fitted? No ✓ If so, state type \_\_\_\_\_ Length of bearing next to and supporting propeller 1695 mm ✓

Material of bearing Lignum vitae ✓ In multiple screw vessels is the liner between stern tube and A bracket continuous? \_\_\_\_\_ If not, is the exposed length of shafting between liners readily visible in dry dock? \_\_\_\_\_

## PROPELLER. Diameter of propeller 4100 mm ✓ Pitch 3480 mm ✓ Built up or solid Solid ✓ Total developed surface 6.47 m<sup>2</sup> ✓

No. of blades 4 ✓ Blade thickness at top of root fillet 157 mm ✓ Blade material Bronze ✓ Moment of inertia of dry propeller GD<sup>2</sup> 17500

If propeller is of special design, state type \_\_\_\_\_ Is propeller of reversible pitch type? No ✓ If so, is it of approved design? \_\_\_\_\_

State method of control \_\_\_\_\_ Material of spare propeller Steel ✓ Moment of inertia GD<sup>2</sup> 17000 kgm

## AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None ✓ Can they be declutched? \_\_\_\_\_

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2 off 120 m<sup>3</sup>/h. el. motor E.R. working port forward and aft, Southampton cert. No. D 9695x9771, 1 off 9.5 m<sup>3</sup>/h. el. motor or hand E.R. port side, Southampton cert. D 94

No. of starting air receivers. (Main and A. State capacity of each, position in ship and Port and No. of Certificate) 2 off 4.5 m<sup>3</sup> port forward and aft. Got. cert. No. 22238. 1 off 0.3 m<sup>3</sup> port side in E.R. Not. cert. No. C 25505.

By el. or hand driven air compressor M.E. 25 kg/cm<sup>2</sup> Motive power from hand or el. started diesel engine. Maximum working pressure of starting air system Aux. E. 21 kg/cm<sup>2</sup> Are the safety devices in accordance with the Rules? Yes ✓ Has the starting of the main engines been tested and found satisfactory? Yes ✓

COOLERS. No. of main engine fresh water coolers 1 ✓ No. of main engine lubricating oil coolers 2 ✓

## OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 3 in aft part of E.R. p and s and centre.

## MAIN ENGINE DRIVEN PUMPS (No. and Purpose) Got. Rpt. 23394.

Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X															
	SUCTION									DELIVERY						
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Emerg Bilge	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
Ballast stb. side E.R. el.driven 120 t/h	X.	X.	X.	X.		X.			X.		X.		X.			Over Board
Bilge and fire stb.side E.R. el.driven 65 t/h 20 m head	X.					X.										Over Board
Fire & deck wash, shaft tunnel. El.driven						X.								X.		Over Board
Fuel oil transfer stb.side E.R. el.driven				X.		X.								X.		
F.w.circ.pump,M.E.&Aux.Eng:s stb.side E.R. El.driven					X.	X.							X.			Over Board
S.w.circ.pump M.E.& Aux.Eng:s stb.side E.R. El.driven					X.	X.					X.	X.				Freeon Cond.
Spare f.w.& s.w.circ.pump M.E. & Aux.Eng:s stb.side E.R.El.driven					X.	X.					X.	X.				Freeon Cond.
2 off lub.oil for M.E. stb.side E.R.El.driven					X.	X.					X.	X.				Freeon Cond.
F.w.circ.aux.eng:s port side E.R. El.driven								X.							X.	
S.w.circ.aux.eng:s port side E.R.El.driven				X.								X.				
2 off circ.refr.condensers port side E.R.El.driven						X.					X.					Freeon Cond.
						X.										

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room. Hold No. 1-2 off 2", No. 2-2 off 3", No. 3 (divided) forward part 2 off 2" aft part 2 off 2", No. 4-4 off 2", No. 5 (divided) forward part 2 off 2" aft part 2 off 2", No. 6-6 off 2", No. 7 (divided) forward part 2 off 2" aft part 2 off 2", No. 8-8 off 2", No. 9 (divided) forward part 2 off 2" aft part 2 off 2", No. 10-10 off 2", No. 11 (divided) forward part 2 off 2" aft part 2 off 2", No. 12-12 off 2", No. 13 (divided) forward part 2 off 2" aft part 2 off 2", No. 14-14 off 2", No. 15 (divided) forward part 2 off 2" aft part 2 off 2", No. 16-16 off 2", No. 17 (divided) forward part 2 off 2" aft part 2 off 2", No. 18-18 off 2", No. 19 (divided) forward part 2 off 2" aft part 2 off 2", No. 20-20 off 2", No. 21 (divided) forward part 2 off 2" aft part 2 off 2", No. 22-22 off 2", No. 23 (divided) forward part 2 off 2" aft part 2 off 2", No. 24-24 off 2", No. 25 (divided) forward part 2 off 2" aft part 2 off 2", No. 26-26 off 2", No. 27 (divided) forward part 2 off 2" aft part 2 off 2", No. 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off 2", No. 335 (divided) forward part 2 off 2" aft part 2 off 2", No. 336-336 off 2", No. 337 (divided) forward part 2 off 2" aft part 2 off 2", No. 338-338 off 2", No. 339 (divided) forward part 2 off 2" aft part 2 off 2", No. 340-340 off 2", No. 341 (divided) forward part 2 off 2" aft part 2 off 2", No. 342-342 off 2", No. 343 (divided) forward part 2 off 2" aft part 2 off 2", No. 344-344 off 2", No. 345 (divided) forward part 2 off 2" aft part 2 off 2", No. 346-346 off 2", No. 347 (divided) forward part 2 off 2" aft part 2 off 2", No. 348-348 off 2", No. 349 (divided) forward part 2 off 2" aft part 2 off 2", No. 350-350 off 2", No. 351 (divided) forward part 2 off 2" aft part 2 off 2", No. 352-352 off 2", No. 353 (divided) forward part 2 off 2" aft part 2 off 2", No. 354-354 off 2", No. 355 (divided) forward part 2 off 2" aft part 2 off 2", No. 356-356 off 2", No. 357 (divided) forward part 2 off 2" aft part 2 off 2", No. 358-358 off 2", No. 359 (divided) forward part 2 off 2" aft part 2 off 2", No. 360-360 off 2", No. 361 (divided) forward part 2 off 2" aft part 2 off 2", No. 362-362 off 2", No. 363 (divided) forward part 2 off 2" aft part 2 off 2", No. 364-364 off 2", No. 365 (divided) forward part 2 off 2" aft part 2 off 2", No. 366-366 off 2", No. 367 (divided) forward part 2 off 2" aft part 2 off 2", No. 368-368 off 2", No. 369 (divided) forward part 2 off 2" aft part 2 off 2", No. 370-370 off 2", No. 371 (divided) forward part 2 off 2" aft part 2 off 2", No. 372-372 off 2", No. 373 (divided) forward part 2 off 2" aft part 2 off 2", No. 374-374 off 2", No. 375 (divided) forward part 2 off 2" aft part 2 off 2", No. 376-376 off 2", No. 377 (divided) forward part 2 off 2" aft part 2 off 2", No. 378-378 off 2", No. 379 (divided) forward part 2 off 2" aft part 2 off 2", No. 380-380 off 2", No. 381 (divided) forward part 2 off 2" aft part 2 off 2", No. 382-382 off 2", No. 383 (divided) forward part 2 off 2" aft part 2 off 2", No. 384-384 off 2", No. 385 (divided) 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off 2", No. 411 (divided) forward part 2 off 2" aft part 2 off 2", No. 412-412 off 2", No. 413 (divided) forward part 2 off 2" aft part 2 off 2", No. 414-414 off 2", No. 415 (divided) forward part 2 off 2" aft part 2 off 2", No. 416-416 off 2", No. 417 (divided) forward part 2 off 2" aft part 2 off 2", No. 418-418 off 2", No. 419 (divided) forward part 2 off 2" aft part 2 off 2", No. 420-420 off 2", No. 421 (divided) forward part 2 off 2" aft part 2 off 2", No. 422-422 off 2", No. 423 (divided)



# GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and give recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

The machinery of this vessel has been installed under Special Survey in accordance with approved plans and the Secretary's letters.

The workmanship is good.

The machinery of this vessel is eligible, in my opinion, to be classed in the Register Book with the notation: +LMC 12.57 and CL.

NOTE 1:- The M.E. tachometer marked for barred speed at 50-60 r.p.m. and a notice board is fitted at the control station stating that the engine is not to be operated continuously between 50 and 60 r.p.m.

NOTE 2:- Fire extinguishing arrangement in E.R.  
2-2 1/2" hoses with special nozzles, 4 off 12 litres foam extinguishers, 1 CO<sub>2</sub> á 6.7 kgs., 2 CO<sub>2</sub> á 20.3 kgs., 1 50 litres foam for oil fired domestic hot water boiler under 50 p.s.i. w.p. or 50 sq.feet. controlled from deck. One el.driven fire pump in shaft tunnel, motive power from harbour light diesel driven generator on shelter deck.

NOTE 3:- The Owners wish to adopt the Continuous Survey system for the machinery of this ship.

Engine Surveyor to Lloyd's Register of Shipping.

PARTICULARS OF IDENTIFICATION MARKS ((Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS

CRANKSHAFT OR ROTORSHAFT

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING

INTERMEDIATE SHAFTS LLOYD'S KIRCALDY Nos. 242, 243, 244, J.C. 122.57.

SCREW AND TUBE SHAFTS LLOYDS KIRCALDY No. 240 G.H.25.1.57 (fitted) LLOYDS KIRCALDY No.241 G.H.25.1.57.(spare)

PROPELLERS 2.2035 R.F. ADH.LLOYDS ADH LON.27.9.56.LON. (fitted) LLOYDS CPN No. 4372 M.N. 29.11.56 (spare)

OTHER IMPORTANT ITEMS 3 coupling flanges SKF type: LLOYDS SKM.

Is the installation a duplicate of a previous case? Yes. Finnroda Yard No.367. If so, state name of vessel m/s "SVENSKSUND".

Date of approval of plans for crankshaft Got.Rpt.No.23394 Straight shafting Lon.13.12.56. Gearing - Clutch -

Separate oil fuel tanks Lon.5.11.56. Pumping arrangements Lon.16.7.56. Oil fuel arrangements Lon.5.11.56.

Cargo oil pumping arrangements - Air receivers Got.cert.No.22238 Donkey boilers -

Dates of examination of principal parts:-

Fitting of stern tube 2.8.57. Fitting of propeller 31.5.57. Completion of sea connections 9.11.57. Alignment of crankshaft in main bearings 29.8.57&28.1

Engine chocks & bolts 30.10.57. Alignment of gearing - Alignment of straight shafting 30.8.57. Testing of pumping arrangements 19.11.57

Oil fuel lines 19.11.57. Donkey boiler supports - Steering machinery 5.12.57. Windlass 5.12.57.

Date of Committee TUESDAY - 4 MAR 1958 Special Survey Fee Kr. 1.840:--

Decision See Rpt. 1. Expenses Kr. 66:--

Date when A/c rendered 17/1 1958.