

Rpt. 4b

127 JAN 1958

Date of writing report 22nd January, 1958. Received London Port of Stockholm No. 11361
Survey held at Stockholm No. of visits In shops 4 First date 31.5.57. Last date 13.12.57.
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
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? 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 Tensile strength Webs Tensile strength

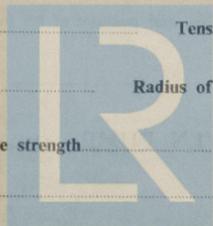
Diameter of flywheel Weight Are balance weights fitted? Total weight Radius of gyration

Diameter of flywheel shaft Material Minimum approved tensile strength

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

Handwritten signature and date 27/2/58

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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. (A small diagram should be attached showing gas cycle.)
 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/mm² 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/mm²
 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 m² ✓

No. of blades 4 ✓ Blade thickness at top of root fillet 157 mm ✓ Blade material Bronze ✓ Moment of inertia of dry propeller GD² 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 GD² 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 m³/h. el. motor E.R. working port forward and aft, Southampton cert. No. D 9695x9771, 1 off 9.5 m³/h. el. motor or hand E.R. port side, Southampton cert. D 94 ✓
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2 off 4.5 m³ port forward and aft. Got. cert. No. 22238. 1 off 0.3 m³ port side in E.R. Not. cert. No. C 25505. ✓
 How are receivers first charged? By el. or hand driven air compressor. Motive power from hand or el. started diesel engine. ✓ Maximum working pressure of starting air system M.E. 25 kg/cm². Aux. E. 21 kg/cm² ✓ 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												
Bilge and fire stb. side E.R. el. driven 40 t/h 20 m head	X					X				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		Over Board
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.

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. and size connected to main bilge line in main engine room 2 off 3", 1 off 4", 1 off 2", cofferdam 1 off 2" ✓
 In aux. engine room None ✓ In tunnel 1 off 2" ✓
 stb. forward bilge. ✓
 Size and position of direct bilge suction in machinery spaces 1 off 4" ✓
 Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? No ✓
 special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (strike out words not applicable). Yes ✓
 Do the piping arrangements comply with the Rules including

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Port forward outboard	Diesel engine	Ruston Hornsby	Not. cert. No. C 25471	One 130 kW Generator
Port forward inboard	Diesel engine	Ruston Hornsby	Not. cert. No. C 25471	One 130 kW Generator
Port aft Deckhouse	Diesel engine	Ruston Hornsby	Not. cert. No. C 25471	One 130 kW Generator
shelter deck forward	Diesel engine	Ruston Hornsby	Not. cert. No. C 23983	One 32 kW Generator

Is electric current used for essential services at sea? Yes ✓
 at sea One 130 kW (Two 130 kW with refr. machinery during cooling-down period) ✓
 If so, state the minimum No. and capacity of generators required in order that the ship may operate

STEAM INSTALLATION. No. of donkey boilers burning oil fuel W.P. Type
 Is a superheater fitted? Are these boilers also heated by exhaust gas? No. of donkey boilers heated by exhaust gas only? W.P.
 Do the steam range or do they operate only as economisers in conjunction with oil fired boilers? Can the exhaust heated boilers deliver steam directly to
 Is steam essential for operation of the ship at sea? Are any steam pipes over 3 ins. bore? If so, what is their
 For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? No. of oil burning pressure
 No. of steam condensers No. of Evaporators

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) A.S.E.A. motor-gen. (Leonard) motortype D 21 Nos. 4760432/33, type LD 17 Nos. 4761117/18, Gen: s type LD 17 Nos. 4761137/38. ✓
 Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes ✓ Brief description of arrangements. Please see Note 2 under General ✓
 Remarks.

Has the spare gear required by the Rules been supplied? Yes ✓ Has all the machinery been tried under full working conditions and found satisfactory? Yes ✓ Date and duration of full sea trials of main engines 5.12.57 and 12.12.57, 8 and 4 hours respectively. ✓
 Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

The foregoing description of the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable).

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 CO₂ á 6.7 kgs., 2 CO₂ 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.

M. Lund
Engineer 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.

Got. Rpt. No. 23394.

Is the installation a duplicate of a previous case? Yes, Finnboda 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 & 28.11.57
 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.

