

See also Manchester F.E. Report 4b No. 18507 (Attached hereto)

20 OCT 1959

Rpt. 4b

August, 1959

of Gdansk

No. F.E.M.007

Date of writing report

Received London

Port

G d a n s k

In shops 2

First date

6th March, 59

Last date

31st July, 1959

Survey held at

No. of visits

On vessel 16

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 40524 Name M.V. "KRUTYNIA" Gross tons 472.95

Owners Polish Government Managers Polish Steamship Company Port of Registry Szczecin

Hull built at Gdansk By Stocznia Gdanska Yard No. B51/010 Year Month When 1959-3

Main Engines made at Openshaw By Crossley Bros. Ltd. Eng. No. 148440 When 1958

Gearing made at --- By ---

Donkey boilers made at --- By --- Br. Nos. --- When ---

Machinery installed at Gdansk By Stocznia Gdanska When 1959

Particulars of restricted service of ship, if limited for classification No Restriction

Particulars of vegetable or similar cargo oil notation, if required None required

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? No. Type of refrigerant Dichloro-Difluoro-Methane

Is the refrigerating machinery compartment isolated from the propelling machinery space? Yes. Is the refrigerated cargo installation intended to be classed? No.

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 One. No. of propellers One. Brief description of propulsion system 2 SC SA, 8 cy., Heavy Oil Engine, direct drive / to propeller.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. HR N8/34

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

Maximum approved BHP per engine 680 at RPM of engine and RPM of propeller.

Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure Machinery numeral 136

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 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? Built-up Seating

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? 5/11/58 425.0

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 20.10.58 State barred speed range(s), if imposed for working propeller 120-145 R.P.M. For spare propeller Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?

Where positioned? Type 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)

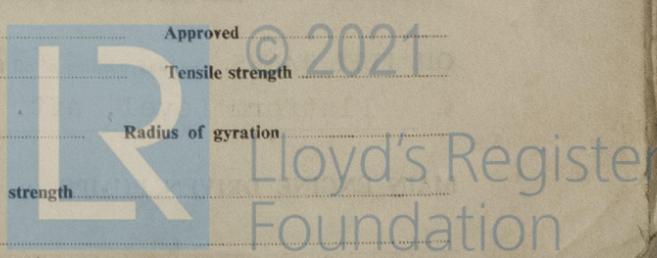
Diameter of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs Side Pins Minimum

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)



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 _____
 (A small diagram should be attached showing gas cycle.)
 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 _____
 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 _____
 minute at full power _____ Gas delivery pressure _____ Gas delivery temperature _____ Have the turbines and attached equipment been tested work
 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 complete
 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 _____ Material _____ Minimum approved tensile strength _____

Shaft separate or integral with crank or wheel shaft? _____ Diameter of intermediate shaft None Material _____

Minimum approved tensile strength _____ Diameter of screwshaft cone at large end 164 mm Is screwshaft fitted with a continuous liner? No.

Diameter of tube shaft. (If these are separate shafts) Not Appl'ie Is tube shaft fitted with a continuous liner in way of stern tube _____ Thickness of screw/tube shaft liner _____
 bearings _____ Thickness between bearings _____ Material of screw/tube shaft O.W. Furnace S.M. Steel Minimum approved tensile strength 44kg.
 Is an approved oil gland fitted? Yes. If so, state type Cedervall Type Length of bearing next to and supporting propeller 703 mm

Material of bearing white metal 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 5' 10 1/2" Pitch 4' 3" Built up or solid Solid Total developed surface 16 sq. feet

No. of blades four Blade thickness at top of root fillet _____ Blade material Mang. Bronze Moment of inertia of dry propeller _____

If propeller is of special design, state type No. Is propeller of reversible pitch type? No. If so, is it of approved design? _____

State method of control _____ Material of spare propeller Cast Steel Moment of inertia _____

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine one Can they be declutched? No.

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) One, 12 cu. feet/min at 350 p.s.i. and
 electric motor driven, Engine Room

Lower Platform. s.s., Ipswich, No. 13891a

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Two Main, two Aux., Main-4251, s.s. u
 & lower (Nottingham C. 26622 and 26624), Aux'y- 60 l., (Hanover C. 58) 502 and 58/584 s.s.f. &

How are receivers first charged? By hand compressor Maximum working pressure of starting air system 30 Kgs/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 None No. of main engine lubricating oil coolers One.

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure Two Daily Service Tanks at Middle
 Platform Level, aft.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) See Manchester F.E. report for Main Motor.

INDEPENDENT PUMPS 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	Over flow Tank	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Over Board
Bilge, p.s. 35 t/h	X	X	X			X										X
Ballast, p.s. 50t/h	X		X			X				X			X			X
Fire, p.s. 50t/h						X				X			X			X
C.F. Transfer, p.s.a.					X				X			X				X
" Hand Pump p.s.a.					X				X			X				X

N.B. All Pumps electric motor driven

BILGE SUCTIONS. No. and size in each hold, ~~top of tank room~~ No. 1 - 2x70mm; No. 2- 2 x 70mm.

No. and size connected to main bilge line in main engine room 3 x 70mm Not applicable

In aux. engine room _____ Size and position of direct bilge suction in machinery spaces One - 82.5mm s.s.f.

In aux. engine room _____ Size and position of emergency bilge suction in machinery spaces One - 82.5 p.s. Suction from Ballast Pump

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? No. Do the piping arrangements comply with the Rules including
 special requirements for ships ~~capable of navigation in ice~~ or classed for navigation in ice? (strike out words not applicable). Yes.

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
s.s.f.	4 sc S.A.	Klöckner-Humboldt, Deutz	Hamburg No. 58/2900	Electric Generator 32 KW
p.s.f. outboard	4 sc S.A.	do	Hamburg No. 58/2901	" "
p.s.f. inboard	4 sc S.A.	do	Hamburg No. 58/2929	" "

Is electric current used for essential services at sea? Yes. If so, state the minimum No. and capacity of generators required in order that the ship may operate
 at sea One, 32 KW Is an electric generator driven by Main Engine? No.

STEAM INSTALLATION. No. of donkey boilers heating oil fuel _____ W.P. _____ Type _____

Position _____

Is a superheater fitted? _____ Are these boilers also heated by exhaust gas? _____ No. of donkey boilers heated by exhaust gas only? _____ W.P. _____

Type _____ Position _____ Can the exhaust heated boilers deliver steam directly to
 the steam range or do they operate only as economisers in conjunction with oil fired boilers? _____ Port and No. of report on donkey
 boilers _____ Is steam essential for operation of the ship at sea? _____ Are any steam pipes over 3 ins. bore? _____ If so, what is their
 material? _____ For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? _____ No. of oil burning pressure
 units _____ No. of steam condensers _____ No. of Evaporators _____

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) One, all electric type, powered by
 A 2HP motor type K1-8 electrically controlled, capable of being hand operated from poop deck
 / in emergency

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes. Brief description of arrangements Fire hoses with spray nozzles

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-
 power sea trials of main engines 21st July, 1959- 6 hours Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)
No.

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 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 Main and Auxiliary Machinery and Electrical Installation, as fitted aboard this vessel has been, with the exception of a few minor and nonessential auxiliaries, constructed and installed under Special Survey in accordance with the Rules, approved plans and Secretary's letters.

The quality of materials used and workmanship generally are sound and good and in our opinion the installation is such as can be classed with this Society, with the following Survey Records and Notations:-

" L.M.C. (N.E.) 7,59" and "T.S. (O.G.) N. 7,59"

Re Barred Speed Range:-

In accordance with instructions given in Secretary's letter a notice board has been permanently fixed at the starting platform station that the Main Motor should not be run continuously at speeds ranging between 120 & 145 R.P.M. The engine is marked accordingly.

B. Langhamer (for J. Manson)
Engineer Surveyor to Lloyd's Register of Shipping.
J. Manson & B. Langhamer

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

RODS See Manchester Surveyor's F.E. Report No. 18507

CRANKSHAFT ~~OR MOTOR SHAFT~~

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING

INTERMEDIATE SHAFTS

SCREW ~~AND TUBE~~ SHAFTS K-0160-84 Elblag J.M. 18.4.59

PROPELLERS Working:- No. 54922 Glasgow 3.3.59 (Bronze); Spare (S. Steel) :- No. 1086 P.R.S.

OTHER IMPORTANT ITEMS copies of outport Certificates for Auxiliary Motors, Air Receivers, Pumps attached hereto. Identification marks on same verified.

Is the installation a duplicate of a previous case?	No.	If so, state name of vessel		
Date of approval of plans for crankshaft	16.9.58	Straight shafting	Gearing	Not applicable Not applicable
Separate oil fuel tanks	19.6.58	Pumping arrangements	Clutch	19.6.58
Cargo oil pumping arrangements	Not applicable	Air receivers	Oil fuel arrangements	Not applicable
Dates of examination of principal parts:-				
Fitting of stern tube	16.3.59	Fitting of propeller	24.4.59	Completion of sea connections
Engine chocks & bolts	5.6.59	Alignment of gearing	Not applicable	Alignment of crankshaft in main bearings
Oil fuel lines	12.6.59	Alignment of straight shafting	5.6.59	Testing of pumping arrangements
Date of Committee		Donkey boiler supports	Not applicable	18.7.59
Decision	See Rpt. 1	Steering machinery	18.7.59	21.7.59
		Windlass		
		Special Survey Fee	£7,600.- & £ 100.-	
		Late Attendance Fee	£ 300.-	
		Expenses		

FRIDAY 13 NOV 1959

