

Rpt. 4b

See also F.E. Rpt 4 b No. GDK 013/63 attached hereto.

Date of writing report 21st March, 1964

Received London

Port of Gdansk

No. FEM 076

Survey held at Gdansk, Gdynia, Poznan

No. of visits

In shops 8  
On vessel 46

First date 14.3.62

Last date

19.12.63

20.2.64

# FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 42711 Name m.s. "FRANCESCO NULLO" Gross tons 5668

Owners Polish Government Managers Polish Ocean Lines Port of Registry Gdansk

Hull built at Gdynia By Stocznia im. Kom. Paryskiej Yard No. B 41/1 Year Month When 1964

Main Engines made at Poznan By H. Cegielski-Poznan Eng. No. 001 When 1963-2

Gearing made at - By - Gear No. - When -

Aux. boilers made at Gdansk By Stocznia Gdanska Blr. Nos. 2071, 2057, 2058 When 1963-5

Machinery installed at Gdynia By Stocznia im. Kom. Paryskiej When 1964-1

Particulars of restricted service of ship, if limited for classification no restrictions

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

If ship is to be classed for navigation in ice, state whether Class 1, 2 or 3 Ice Class 3 Is ship an oil tanker? No

Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? No Type of refrigerant Dichloro-difluore-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 should 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 all other relevant particulars must be given and the port and report number should be stated.

No. of main engines 1 No. of propellers 1 Brief description of propulsion system Heavy Oil Engine direct coupled to line shafting

MAIN RECIPROCATING ENGINES. Licence Name and Type No. "H. Cegielski-Sulzer", Type 6 RD 68

No. of cylinders per engine 6 Dia. of cylinders 680 mm stroke(s) 1250 mm 2 or 4 stroke cycle 2 Single or double acting single

Maximum BHP per engine approved for this installation 7200 at 139 RPM of engine and 139 RPM of propeller.

Corresponding MIP 9.7 kg/cm<sup>2</sup> (For DA engines give MIP top & bottom) Maximum cylinder pressure 72 kg/cm<sup>2</sup> Machinery numeral 1440

Are the cylinders arranged in Vee or other special formation? No, in line 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?

TWO AND 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?

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 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? 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 Centre Diameter of crankpins 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)



1/2200-09E210-25E210

**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. State Port and report No.)

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. Full particulars to be reported on Form 4e.)

Port ..... Report No. ....

**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 thrust shaft ..... 500 mm Material Forged Steel actual Minimum approved tensile strength 52.0 kg/mm<sup>2</sup>

Shaft separate or integral with crank or wheel shaft? wheel shaft Diameter of intermediate shaft 370 mm Material forged steel

Minimum approved tensile strength 46.5 kg/mm<sup>2</sup> Diameter of screw shaft cone at large end 440 mm Is screw shaft fitted with a continuous liner? yes

Diameter of tube shaft. (If these are separate shafts) ..... Is tube shaft fitted with a continuous liner in way of stern tube ..... Thickness of screw shaft liner at bearings 22 mm Thickness between bearings 19 mm

How is the after end of the liner made watertight in the propeller boss? rubber ring with glass

Material of screw shaft forged steel Minimum approved tensile strength 51.1 kg/mm<sup>2</sup> an approved oil gland fitted? - If so, state type -

Length of bearing next to and supporting propeller 2000 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. If of special design, state type ..... Is it of reversible pitch type? No

If so, is it of approved design? - State method of control .....

Propeller	Diameter mm	Pitch mm	Built or solid	Total developed surface m <sup>2</sup>	No. of blades	Blade thickness at top of root fillet mm	Blade material	Tensile strength kg/mm <sup>2</sup>	Design moment of inertia of propeller (I <sub>prop</sub> ) & water	For Class 1 or 2 ice strengthening only			
										Blade thickness at 25% radius	Blade thickness at tip	Length of blade section at 25% radius	Rake of blade
Working	4748	4034	solid	8.789	4	155.5	bronze	50.1	34.2 tm <sup>2</sup>				
Spare	4751	4044	solid	8.789	4	188.0	cast steel	44.7	-				

**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) 240 m<sup>3</sup>/hr, E.M. driven, stbd inbd, POZ 078

240 m<sup>3</sup>/hr, E.M. driven, stbd outbd, POZ 079/62; 50 m<sup>3</sup>/hr, Diesel Engine driven, steering gear flat, CPN 6.3.63. X

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Main, two: 8 m<sup>3</sup>, upper platform, stbd, fwd, inbd KAT 853 & 854; Aux. one: 450 l, lower platform, stbd, GDK Rpt 10 No. 594, 17.2.64. Henry 402. Jan 19

How are receivers first charged? air compressor Maximum working pressure of starting air system 30 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 2 No. of main engine lubricating oil coolers 2 No. of M.E. piston F.W. coolers 2

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure none

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) none

**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	Lub. Oil	Emerg bilge	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Overboard
Ballast, p.s.f., 160 m <sup>3</sup> /hr	X	X	X	X		X											
Bilge, s.s.f., 120 m <sup>3</sup> /hr	X	X	X	X		X							X				X
Fire (2), p.s.f. & a.						X							X				X
M.E.F.W. Cooling p.s.f.					X							X					
M.E.S.W. Cooling, p.s.a. 400 m <sup>3</sup> /h					X			X		X							X
M.E.St-By Cooling, p.s.m. 400 m <sup>3</sup> /h					X	X		X		X	X						X
M.E.Lub.Oil (2), p.s.f. & a.								X									X
O.F.Transfer Heavy Oil, p.s.a. inbd				X											X		
Aux.F.W. Cooling, p.s.f. inbd					X							X					
Aux.S.W. Cooling, p.s.f. outbd						X					X						
Feed (2), B.R.p.s. inbd & outbd							X			X							
Boiler Circulating La Mont, E.R.T.D. p.s.f.										X							
M.E. Booster (2), p.s.a. upper & lower				X													
M.E. F.W. Piston Cooling (2)					X												

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room No.1 Hold: 2 @ 100 mm; No.2 Hold: 2 @ 100 mm; No.3 Hold: 2 @ 100 mm; No.4 Hold: 2 @ 100 mm; No.5 Hold: 2 @ 80 mm.

No. and size connected to main bilge line in main engine room 6 @ 80 mm In tunnel one, 100 mm

cofferdams: 2 @ 65 mm Size and position of direct bilge suction in machinery spaces 100 mm, p.s. middle, 150 mm, s.s. middle

Size and position of emergency bilge suction in machinery spaces 250 mm, p.s. middle

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? yes Do the piping arrangements comply with the Rules including special requirements for oil tanks, when carrying cargo oil or classed for navigation in ice Class 1, 2 or 3? (Strike out words not applicable.) yes Class 3

**STEAM & OIL ENGINE AUXILIARIES**

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Stb.fwd.outbd.	4 S.C.S.A.	H.Cegielski Poznan	POZ 105/63 *	Alternator 400 kVA
Stbd aft outbd.	"	"	POZ 105/63	" "
Stbd fwd. inbd.	"	Z.U.T.Zgoda Swietochlowice	KAT 966	" 250 kVA
Steering Gear Flat	"	Bukh Motor Fabr. Kalundborg	CPN 6.3.63	Emergency Fire Pump Emergency Air Compressor

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 1 @ 400 kVA, and 1 @ 250 kVA

Is an electric generator driven by Main Engine? no

STEAM INSTALLATION. No. of aux/donkey boilers burning oil fuel 1 W.P. 7 kg/cm<sup>2</sup> Type Vertical, "Haystack", VX 2/V

Position E.R., lower platform, port, forward.

Is a superheater fitted? no Are these boilers also heated by exhaust gas? no No. of aux./donkey boilers heated by exhaust gas only? 1 W.P. 7 kg/cm<sup>2</sup>

Type "La Mont" LA 100/II Position E.R. Casing, top, forward 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? as economiser only YES

Port and No. of report on aux./donkey boilers GDK 076 Is steam essential for operation of the ship at sea? yes Are any steam pipes over 3 ins. bore? no If so, what is their material? -

For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules YES No. of oil burning pressure units 1

No. of steam condensers - No. of Evaporators one, vacuum, "Atlas" fresh water generator

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars including particulars of alternative means of steering) Electro-hydraulic, 4 ram type, "MS-160", Gear No. 8010, made by "Hydroster" Gdansk, two V.D. pumps, two electric motors, Cert. No. GDK 593

Have the Rule Requirements for fire extinguishing arrangements been complied with? YES Brief description of arrangements 80 CO<sub>2</sub> bottles @ 40 l in CO<sub>2</sub> compartment; portable CO<sub>2</sub> and foam fire extinguishers; sand boxes and scoops.

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 29.12.63, 8 hrs

Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) none

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 constructed ~~under~~ and installed under Special Survey, in accordance with the Rules, approved plans and Secretary's letters.

The materials used and workmanship are good.

On completion, the machinery installation has been tested at sea under full power conditions and proved satisfactory.

The machinery installation is, in our opinion, eligible to be classed with the Society with following notations:

+ LMC ES 1,64 TS(CL) 1,64 ABS 7 kg/cm<sup>2</sup> 1,64

*B. Langhamer M. Cauchla*  
B. Langhamer & M. Cauchla  
Engineer Surveyor to Lloyd's Register of Shipping.

See also F.E Rpt. 4 h No.GDK 013/63 attached hereto.

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

RODS

CRANKSHAFT OR ROTOR SHAFT

FLYWHEEL SHAFT

THRUST SHAFT

GEARING

INTERMEDIATE SHAFTS ~~K 4175, TND 22.22/1; K 4245, TND 47.47/1; K 4174, TND 21.21/1; K 2240, TND 20.20/1; K 4204, TND 37.37/1; K 4173, TND 19.19/1.~~ also K 2240

SCREW ~~AND TUBE~~ SHAFTS Lloyd's KAT K 4200 NT 33-33/1 Fin m/c GDK 29.12.62

PROPELLERS Working:- CTG 854 Tno. 952 MCh; Spare:- Ctg 866

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? No If so, state name of vessel \_\_\_\_\_

Date of approval of plans for crankshaft 16/8/62 Straight shafting 9/4/63 Gearing \_\_\_\_\_ Clutch \_\_\_\_\_

Separate oil fuel tanks \_\_\_\_\_ Pumping arrangements 4/9/61 Oil fuel arrangements 4/9/61

Cargo oil pumping arrangements \_\_\_\_\_ Air receivers \_\_\_\_\_ Aux. ~~boiler~~ boilers 17/1/60

Dates of examination of principal parts:—

Fitting of stern tube 5/9/63 Fitting of propeller 15/9/63 Completion of sea connections 17/9/63 Alignment of crankshaft in main bearings \_\_\_\_\_

Engine chocks & bolts 7/11/63 Alignment of gearing \_\_\_\_\_ Alignment of straight shafting 15/9/63 Testing of pumping arrangements 17/

Oil fuel lines 20/11/63 Donkey boiler supports 17/9/63 Steering machinery 22/12/63 Windlass 24/12/63

Date of Committee FRIDAY 19 JUN 1964 Special Survey Fee zX 14,910.- & £ 28

Decision + LMC ES ABS 7 kg/cm<sup>2</sup> sp MCh 10% = £ 255.1

Expenses zX 500,50

Date when A/c rendered 31.1.1964  
12.3.1964 (zX  
Lloyd's Register Foundation