

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

First date

Last date

In shops 8
On vessel 46

14.3.62

19.12.63

24.4.63

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
Zakłady Przemysłu Metalowego

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/cm²

(For DA engines give MIP top & bottom)

Maximum cylinder pressure 72 kg/cm²

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

Side

Breadth of webs at mid-throw

Axial thickness of webs

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.....
(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 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 thrustshaft.....

Material.....

actual.....

Minimum approved tensile strength.....

52.0 kg/mm²

Shaft separate or integral with crank or wheel shaft?.....

Diameter of intermediate shaft.....

Material.....

Minimum approved tensile strength.....

Diameter of screwshaft cone at large end.....

Is screwshaft 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 screwshaft liner.....

bearings.....

Thickness between bearings.....

How is the after end of the liner made watertight in the propeller boss?

rubber ring with gl

Material of screwshaft.....

Minimum approved tensile strength.....

Is an approved oil gland fitted?

If so, state type.....

Length of bearing next to and supporting propeller.....

Material of bearing.....

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	Pitch	Built or solid	Total developed surface	No. of blades	Blade thickness at top of root fillet	Blade material	Tensile strength	Design moment of inertia of propeller (See Circular 2144)	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 ²				
Spare	4751	4044	solid	8.789	4	188.0	cast steel	44.7	-				

AIR COMPRESSORS & RECEIVERS.

No. of main engine driven compressors per engine.....

Can they be declutched?

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate).....

240 m³/hr, E.M. driven, stbd inbd, POZ 078

240 m³/hr, E.M. driven, stbd outbd, POZ 079/62; 50 m³/hr, Diesel Engine driven, steering gear flat, CPN 6.3.63.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate).....

KAT 853 & 854; Aux. one: 450 l, lower platform, stbd, GDK Rpt No. 10.17.2.64.

Hand started, diesel driven

How are receivers first charged?.....

Maximum working pressure of starting air system.....

Are the safety devices.....

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.....

No. of main engine lubricating oil coolers.....

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.

Ballast, p.s.f., 160 m³/hr

Bilge, s.s.f., 120 m³/hr

Fire (2), p.s.f. & a.

M.E.F.W. Cooling p.s.f.

M.E.S.W. Cooling, p.s.a. 400 m³/h

M.E.St-By Cooling, p.s.m. 400 m³/h

M.E.Lub.Oil (2), p.s.f. & a.

O.F.Transfer-Heavy Oil, p.s.a.inbd

Aux.F.W. Cooling, p.s.f.inbd

Aux.S.W. Cooling, p.s.f.outbd

Feed (2), B.R.p.s.inbd & outbd

Boiler Circulating La Mont, E.R.T.D. p.s.f.

M.E. Booster (2), p.s.a.upper & lower

M.E.F.W. Piston Cooling (2)

M.E. Fuel Pumps

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.....

cofferdams: 2 @ 65 mm

Size and position of direct bilge suction in machinery spaces.....

150 mm, s.s.middle

Size and position of emergency bilge suction in machinery spaces.....

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 tankers, ships 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 966 971	" 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.....

W.P. 7 kg/cm²

Type.....

Vertical, "Haystack", VX 2/V

Position.....

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/cm²

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.....

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.....

CO₂ bottles with hose and diffuser in E.R.; steam smothering in E.R. under VX boiler; fire hydrants with hoses and nozzles; portable CO₂ 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.)

STOCZNIA IM. KOMUNY PARTYSKIEJ

Przedsiębiorstwo Remontowe

GDYNIA, ul. Czechosłowacka 8

Dyrektor Techniczny

mgr inż. Stanisław Jędrzejewski

Builder

Lloyd's Register Foundation

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 teted 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/cm² 1,64

B. Langhamer
B. Langhamer & M. Cuchla
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 ROTORSHAFT

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING

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

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. donkey 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 for working

Decision *HLMC ES* 10% = £ 255.1

abs. cut
sp. cut
Ch

Expenses zX 500,50