

Rpt. 4b

Date of writing report 19-10-64
 Received London _____ Port Gdansk
 Survey held at Szczecin No. of visits In shops 47
 On vessel 66 First date 4-2-64 Last date 14-9-64
 No. F.E.M. 084

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. _____ Name M.V. "JOHANNES LATUHARHARY" Gross tons 6866
 Owners DJAKARTA LLOYD Managers _____ Port of Registry DJAKARTA
 Hull built at Szczecin By Stocznia Szczecińska Year 1964
 Main Engines made at Poznań By Zakłady Przemysłu Metalowego
 "H. CEGIELSKI-Poznań" Eng. No. 025 When 1962-8
 Cyl. Nos. 00167-00172
 Gearing made at _____ By _____ Gear No. _____ When _____
 Aux./donkey boilers made at Gdańsk By Stocznia Gdańska Blr. Nos. 2144 & 2077 When 1963
 Machinery installed at Szczecin By Stocznia Szczecińska When 1964

Particulars of restricted service of ship, if limited for classification _____
 Particulars of vegetable or similar cargo oil notation, if required Vegetable oil carried in No.4 Hold D.T.
 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 Dichlorodifluoromethane
 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 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 One No. of propellers One Brief description of propulsion system Oil engine driving through line shafting to screw propeller.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. "H.Cegielski-Sulzer" 6 RD 76
 No. of cylinders per engine 6 Dia. of cylinders 760mm stroke(s) 1550mm 2 or 4 stroke cycle Two Single or double acting Single
 Maximum BHP per engine approved for this installation 7800 at 119 RPM of engine and 119 RPM of propeller.
 Corresponding MIP 7.8kgs/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 61kgs/cm² Machinery numeral 1560
 Are the cylinders arranged in Vee or other special formation? No. If so, number of crankshafts per engine _____

TWO STROKE ENGINES. Is the engine of opposed piston type? No. 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? Ports No. and type of mechanically driven scavenge pumps or blowers per engine and how driven None
 No. of exhaust gas driven scavenge blowers per engine Two Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? Yes
 If a stand-by or emergency pump or blower is fitted, state how driven not fitted No. of scavenge air coolers 2 Scavenge air pressure at full power 0.46kgs/cm² Are scavenge manifold explosion relief valves fitted? Yes

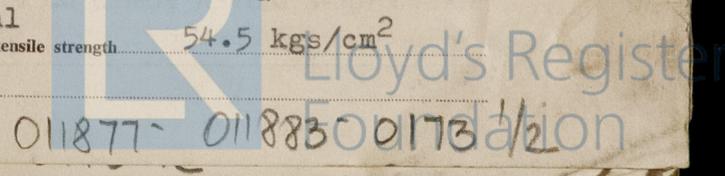
TWO AND FOUR STROKE ENGINES. Is the engine supercharged? Yes Are the undersides of the pistons arranged as supercharge pumps? Yes No. of exhaust gas driven blowers per engine 2 No. of supercharge air coolers per engine 2 Supercharge air pressure 0.46kgs/cm² Can engine operate without supercharger? Yes
 No. of valves per cylinder: Fuel One Inlet _____ Exhaust _____ Starting One Safety One
 Material of cylinder covers cast steel Material of piston crowns forged steel Is the engine equipped to operate on heavy fuel oil? Yes
 Cooling medium for: Cylinders fresh water Pistons lub.oil Fuel valves fresh water Overall diameter of piston rod for double acting engines _____

Is the rod fitted with a sleeve? _____ Is welded construction employed for: Bedplate? Yes Frames? Yes Entablature? Yes Is the crankcase separated from the underside of pistons? Yes Is the engine of crosshead or trunk piston type? X head Total internal volume of crankcase 86.4m³ No. and total area of explosion relief devices 6 with 10,380cm² Are flame guards or traps fitted to relief devices? Yes Is the crankcase readily accessible? Yes 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? tank top How is the engine started? Compressed air at 30 kgs/cm² max.
 Can the engine be reversed? Yes If not, how is reversing obtained? _____
 Has the engine been tested working in the shop? Yes How long at full power? 4 hours and one hour at 110% load

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 13-12-61 95-8, 6x State barred speed range(s), if imposed
 for working propeller _____ For spare propeller _____ Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No
 Where positioned? _____ Type _____ No. of main bearings Seven Are main bearings of ball or roller type? No Distance between inner edges of bearings in way of crank(s) 1010mm Distance between centre lines of side cranks or eccentrics of opposed piston engines _____

Crankshaft type: Built, semi-built, solid. (State which) Semi-built
 Diameter of journals 550mm Diameter of crankpins Centre 550mm Side _____ Breadth of webs at mid-throw 899mm Axial thickness of webs 340mm
 If shrunk, radial thickness around eyeholes 252.5mm Are dowel pins fitted? no Crankshaft material: Journals B.O.H. Minimum 51.3Kgs/mm² Actual 53.8 kgs/mm² Approved _____
 Webs Steel Tensile strength 51.3Kgs/mm²
 Diameter of flywheel 2390mm Weight 1300 Kgs Are balance weights fitted? No Total weight _____ Radius of gyration _____
 Diameter of flywheel shaft 550 mm Material B.O.H. Steel Minimum approved tensile strength 54.5 kgs/cm²

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 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. 550mm Material B.O.H. Steel actual 54.5kgs/mm²

Shaft separate or integral with crank or wheel shaft? Integral with wheelshaft Diameter of intermediate shaft 404mm Material Forged Steel

Minimum approved tensile strength 44 Kg/mm² Diameter of screwshaft cone at large end 480mm 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 at bearings 26mm Thickness between bearings 21mm How is the after end of the liner made watertight in the propeller boss? Rubber ring gland

Material of screwshaft Forged Steel Minimum approved tensile strength 44Kg/mm² Is an approved oil gland fitted? No. If so, state type _____

Length of bearing next to and supporting propeller 2100 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	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 (dry)	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	5308mm	4668mm	Solid	10,193 sq.M	4	252mm	Bronze	53,5Kg/mm ²					
Spare	5304mm	4713mm	"	10,193 sq.M	4	252mm	Bronze	52,5 Kg/mm ²					

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) Two main 240m³/hr. E.D., E.R. forward POZ 124 & 125/63 Energy. 10M³/hr Diesel drive E.R. forward stbd KIEL No.61/5375

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Two main 9 cu.M. E.R. Starboard side forward. Kat. Nos. 1080 & 1104. Two aux. 0,25 cu M. E.R. Stbd side forward inbd KAT 1042

How are receivers first charged? Hand start diesel driven air compressor Maximum working pressure of starting air system 30 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 One No. of main engine lubricating oil coolers Two

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) Main engine fuel injection pumps only.

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	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	O/B
140M ³ /hr Port side E.R. Bilge E.D. One off	X	X	X			X										
160M ³ /hr Port side E.R. Ballast E.D. One off E.R. Forward	X	X	X			X										X
Fire Exting'ng E.D. two off E.R. Stbd						X							X			
M.E.S.W.Circ. E.D. two off E.R. Stbd						X				X						
M.E.F.W.Circ. E.D. two off E.R. Stbd					X						X					
M.E. Lub. Oil Circ. E.D. two off E.R. Stbd							X								X	
Aux. S.W. Circ. E.D. one off E.R. Stbd						X					X					
Aux. F.W.C. RC. E.D. one off E.R. Stbd					X						X					
Aux. S.W. By Circ. E.D. one off E.R. Ford.					X	X					X	X				
O.F. Transfer E.D. two off E.R. Port				X									X			
Feed Water E.D. two off							X			X						

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

No. and size connected to main bilge line in main engine room 3 @ 80mm In tunnel One @ 80mm

In aux. engine room _____ Size and position of direct bilge suction in machinery spaces Port forward 150mm; Stbd aft 125mm

Size and position of emergency bilge suction in machinery spaces Stbd side (S.W.Circ M.E.pp) 250mm

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 ~~ice~~ ships carrying cargo oil or classed for navigation in ice Class ~~1~~ or 3? (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)
E.R. Port Outboard	4 SC SA Oil Engine	Cegielski	Gdansk / 8 of 400 KVA Alternator	
E.R. Port Inboard	"	"	GDK 016/63, 21-22/64	"
E.R. Starboard	"	"	"	"
E.R. Stbd ford outbd.	"	M.W.M. Mannheim Messrs. Bukh Copenhagen	Mannheim M61/114 X and M 61/218 X	Air Compressor 10m ³ /hr KEL No.5375 4/1/61 & 23/1/61 MD
Steering flat	"	"	10-10-63 V.L. X	Emergency fire extinguishing pump.

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 - 400 KVA

Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of aux. ~~boilers~~ boilers burning oil fuel One w.p. 7 kg/cm² Type Vertical Haystack

Position Engine room lower platform port side aft.

Is a superheater fitted? No. Are these boilers also heated by exhaust gas? No. No. of aux. ~~boilers~~ boilers heated by exhaust gas only? One w.p. 7 Kg/cm²

Type La Mont W.T. Position E.R. Below funnel

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 with O.F. boiler Port and No. of report on aux. ~~boilers~~ boilers GDK 103 & GDK 100 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 One No. of steam condensers cooler No. of Evaporators One - Vacuum distilling plant.

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars including particulars of alternative means of steering) Two electric motors driving hydraulic pumps - 4 ram type hydraulic cylinder type. Gdansk No.498 B.L. 30-6-64

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements Complete E.R. CO₂ flooding system. Hydrants and hoses with spray nozzles. Hand extinguishers.

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 17th to 24th September 1964 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 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 ship has been constructed and installed under Special Survey in accordance with the requirements of the Rules, approved plans and Secretary's letters. The materials and workmanship are good. On completion the machinery installation was power tested in a brake chamber at Warnemünde, Germany; running for eight hours at full load and one hour overload in addition to "working up" running at 50%, 75% and 90% load. Subsequently a full power sea trial was held in the Baltic with speed and manoeuvring trials etc., all with satisfactory results.

The oil fuel boiler and exhaust gas economiser have been examined under steam, an accumulation test carried out with satisfactory results and their safety valves adjusted to 7 Kg/cm³.

This installation is eligible in our opinion to be classed with the Society having the notation:-

+ L M C 10,64; T S (CL) 10,64 1 Aux B 100 lb 10,64

Fred Burn
 Engineer Surveyor to Lloyd's Register of Shipping
 F. G. Burn & B. Langhammer

SEE ALSO E.R. RPT. GDK 009/62 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

Intermediate } Ford Length LLOYDS KAT K 2557 LW }
 GEARING Safts } 20-6-63 FIN.M/C GDK 21-9-63 } 2nd-FORD K 2550 LW 15-5-63 }
 FIN M/C GDK 21-9-63 } FIN M/C GDK 21-9-63 }
 INTERMEDIATE SHAFTS } 3rd K2568/MCH 28-6-63 } 4th K2527 LW 30-4-63 } 5th K2540 LW 1-6-63 }
 FIN M/C GDK 21-9-63 } FIN M/C GDK 21-9-63 } FIN M/C GDK 21-9-63 } 6th K25 }
 LLOYDS KAT K2558 LW 21-21-63 } LLOYDS KAT K750 LW 39-39-63 }
 SCREW AND OTHER SHAFTS } FIN.M/C GDK 28-10-63 } Spare: FIN M/C GDK MCH 21-9-63 }
 PROPELLERS } Working LLOYDS GDK CTG 1011 M.CH. 17-8-64 } Spare LLOYDS GDK CTG 1012 MCH. }

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? Yes
 If so, state name of vessel M.V. "SAM RATULANGI"

Date of approval of plans for crankshaft 12-5-60 Straight shafting 13-7-61 Gearing - Clutch -
 Separate oil fuel tanks - Pumping arrangements 16-5-63 Oil fuel arrangements 16-5-63
 Cargo oil pumping arrangements (Veg) 2-4-64 Air receivers - Aux./donkey boilers -
 Dates of examination of principal parts:-
 Fitting of stern tube 9-7-64 Fitting of propeller 25-8-64 Completion of sea connections 31-5-64 Alignment of crankshaft in main bearings 3-9-64
 Engine chocks & bolts 3-9-64 Alignment of gearing - Alignment of straight shafting 3-9-64 Testing of pumping arrangements 14-9-64
 Oil fuel lines 11-8-64 Donkey boiler supports 5-3-64 Steering machinery 23-9-64 Windlass 22-9-64
 Date of Committee FRIDAY 8 JAN 1965
 Decision + LMC
 ES }
 ABS } 10.64
 TS(CL) }

Special Survey Fee M'chy installation £ 296 - 10
 £ 256.
 £ 15,540.-
 Expenses £ 4,800.- 10.12.6