

Rpt. 4b

Date of writing report 5th March, 1962

Survey held at Gdańsk & Poznań

Received London

No. of visits In shops 28 On vessel 96

Port

24-8-1959

First date 21.3.61

No. F.E.M. 060

Last date 16.2.1962

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name M.T. "BALACLAVA"

Owners U.S.S.R. Min. of Merch. Marine National Steamship Co. of Latvia

Gross tons

Hull built at Gdańsk

By Stocznia Gdańska

Port of Registry R I G A

Main Engines made at Poznań

By H. Cegielski

Yard No. B 70/02

Year Month

Gearing made at

By

Eng. No. 006

When

1960 - 10

Auxiliary boilers made at

Gdańsk

By

Stocznia Gdańska

Blr. Nos. GDK 068 & 74

When

1961

Machinery installed at

Gdańsk

By

Stocznia Gdańska

When

1961-2

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

Particulars of vegetable or similar cargo oil notation, if required "Oil Tanker"

Is ship to be classed for navigation in ice? yes

Is ship intended to carry petroleum in bulk? yes

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 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 H.O. Engine-direct coupled to screwshaft

MAIN RECIPROCATING ENGINES. Licence Name and Type No. "CEGIELSKI" SULZER" R.S.A.D.-76

No. of cylinders per engine six Dia. of cylinders 760mm stroke(s) 1550mm 2 or 4 stroke cycle two Single or double acting single

Maximum approved BHP per engine 7800 HP at 119 RPM of engine and 119 RPM of propeller.

Corresponding MIP 7,7kgs/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 60,1kgs/cm² Machinery numeral 1560

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? 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 undersides of all six pistons

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 none No. of scavenge air coolers two Scavenge air pressure at full power 0,5kgs/cm² Are scavenge manifold explosion relief valves fitted? yes

FOUR STROKE ENGINES. Is the engine supercharged? 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 one Inlet none Exhaust none Starting one Safety one Material of cylinder covers Cast Steel (with C.I valve housing) Material of piston crowns forged steel

Cooling medium for: Cylinders Fresh water Pistons Fresh water 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? none Is the crankcase separated from the underside of pistons? yes

Is the engine of crosshead or trunk piston type? head Total internal volume of crankcase 84 cu.m. No. and total area of explosion relief devices 6-9000 cm²

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? by air

Can the engine be directly reversed? yes If not, how is reversing obtained? -

Has the engine been tested working in the shop? yes How long at full power? four and a half one hour, and one hour at 10% overload

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 20.5.59 State barred speed range(s), if imposed for working propeller 75.86 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 7 Are main bearings of ball or roller type? No-Plain Distance between inner edges of bearings in way of crank(s) 990mm 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 900mm Axial thickness of webs 340mm

If shrunk, radial thickness around eyeholes 252mm Are dowel pins fitted? No Crankshaft material Pins OH Steel Journals OH Steel Webs OH Steel Minimum Actual Tensile strength 51,3 kgs/mm² 52,0 kgs/mm² 51,3 kgs/mm²

Diameter of flywheel 2365mm Weight 12500mm Are balance weights fitted? no Total weight - Radius of gyration -

Diameter of flywheel shaft 550mm Material OH Steel Minimum approved tensile strength 52,6 kgs/mm²

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

F.E. FROM ACCTS.	28 MAR 1962
F.E. FROM ADMIN/F	
PLANS RECD.	
GEN. RECD.	
TO RPIS. DEPT.	

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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.)

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 550mm Material OH Steel Actual 52,6kgs/mm² Minimum 34,000 tensile strength

Shaft separate or integral with crank or wheel shaft? Integral with wheelshaft Diameter of intermediate shaft 498 mm Material O.H. Steel

Minimum 49,0kgs/mm² tensile strength Diameter of screwshaft cone at large end 583 mm 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 22,5mm Thickness between bearings 16mm Material of screwshaft OH Steel Minimum 55,5kgs tensile strength

Is an approved oil gland fitted? no If so, state type _____ Length of bearing next to and supporting propeller 2500mm

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 5508mm Pitch 4245 mm Built up or solid solid Total developed surface 11.443 m²

No. of blades four Blade thickness at top of root fillet 212mm Blade material Bronze Moment of inertia of dry propeller 76000 kgm²

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 Not stated

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) 2-26m³/h El. Motor drive, E.R. Port upper Tweendeck, Inbd & outbd Certs. POZ 008/60 EL; 1-26m³/hr Diesel Eng. driven, Port FWD KIEL Cert. No. 61/5374

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of certificate) 2 Main-8,5m³ ER-Port Upper Tweendeck Inbd & Outbd (Polish Reg. Certs Nos. 19/61 & 20/61; 2 Aux- 2,45m³ each- E.R. Port Upper Tweendeck Upper & Lower KAT 506 & KAT 507 Certs; 1 Emerg- 1,55m³- K 388 Cert. X

How are receivers first charged? 26m³/hr Diesel Driven Comp't 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 two 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 1- Diesel Oil - Blr. Room

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	Emg Bilge	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Over Brd
Bilge/ Ballast	X	X	X			X											
M.E. Lub Oil SF. SA																	X
M.E.-S.W.Cooling SI & SO						X			X		X					X	X
M.E.-F.W.Cooling SI & SO					X							X					X
OF-Transfer F & A Centre				X									X				
Boiler Feed F & A							X			X							
Fire F & A						X								X			

All Electric drive except steam driven Boiler Feed Pumps and one Bilge-Ballast Pump

BILGE SUCTIONS. No. and size in each hold, deck, etc. pump room. For 'd Hold 2-65mm; Fire Pump Compt 1-65mm; For 'd Pump Rm. 3-65mm

Cofferdam P & S 2-65mm; Main Pump Room 4-65mm.

No. and size connected to main bilge line in main engine room 1-150mm; 2-100mm; 1-65mm; Coff. Fr. 22-23; 1-50mm

Echo Sdg Compt Fr. 43-43. Port For'd; 1-150mm Stbd For'd Size and position of direct bilge suction in machinery spaces 1-150mm

Size and position of emergency bilge suction in machinery spaces 1-300mm Ford Centre

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 ships carrying petroleum in bulk, cargo oil 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)
Port For'd	Diesel	Jugoturbina	RKA CERT 8519	320KVA, 3Ph, 50Cy, Generator
Port Aft	Diesel	"	RKA CERT 8265	320KVA, 3Ph, 50Cy, "
Starboard	Diesel	"	RKA CERT 8202	320KVA, 3Ph, 50Cy, "
Port For'd	Diesel	Bukh	CPN CERT (No Number)	26m ³ /hr Air Compressor
			(Dated 20.3.61)	
		DIETZ	HAN. 6/1/63 / 4 yrl	Comb. & Liepka.
			KAT 528 / 4 yrl	50KVA.

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

Is an electric generator driven by Main Engine? no STEAM INSTALLATION. No. of Aux. boilers burning oil fuel 2 W.P. 12,5Kgs/cm² Type Scotch Multitubular

Position closed flat above shafting end Eng. Room Is a superheater fitted? no Are these boilers also heated by exhaust gas? no No. of donkey boilers heated by exhaust gas only? One LA Mt Economiser W.P. 12.5 kgs/cm²

Type La Mont Economiser Position in 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? Only as Economisers Port and No. of report on Aux'y boilers Gdańsk 060

Is steam essential for operation of the ship at sea? yes Are any steam pipes over 3 ins. bore? yes If so, what is their material? S.D. Steel For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? yes No. of oil burning pressure units 2 No. of steam condensers one No. of Evaporators One Atlas Freshwater Generator

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) Four Ram Hydraulic, 2 El. Motors

2 Variable Stroke Pumps/see GDK Cert 272/Emerg Hand Pump & Hand Gear Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements CO₂ Smothering with Alarms sufficient Hoses & Nozzles; sufficient Sand & 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 16, 17, 18 Dec. 61 24 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).

DYREKTOR TECHNICZNY
 mgr inż. W. Galić
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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 Main and Auxiliary Machinery of this vessel has been constructed and installed under Special Survey in accordance with the Rules, approved plans and Secretary's Letters.

The torsional vibrations characteristics of the shafting installation of the main machinery have been examined in conjunction with the Engine builders calculations and approved for a service speed of 119 R.P.M., the engine not being operated continuously between 75 and 86 R.P.M.

The materials used and the workmanship are of good quality. The whole machinery installation has been examined under full working conditions during a sea trial with satisfactory results.

This installation is eligible in our opinion to be classed with the Society and to have the record:-

+ LMC 1-62 and the notations
2 SA oil engine, TS(CL) and 2-Aux. Boilers 12,5kgs/cm²

Notes for SRL appendix:- " M.E. not to be operated continuously between 75 and 86 R.P.M."
" T.S. liners on working and spare screwshaft have one circumferential E.W."
"Economiser W.P. 14 kgs/cm²"

G. Manson B. Langlois
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.)

CONNECTORS :- LR KAT L.W. Nos. 893/382BL 22.6.60; LR POZ 010/011 BL 22.6.60; LR KAT.LW.1322/89 BL 22.6.60; LR.POZ.011/010 BL.1.7.60; LR KAT LW. 925/426 BL 1.7.60; LR KAT LW 635/335 BL.22.6.60; LR.KAT ADC 528/286 BL 1.7.60; LR KAT LW.631/322 BL 1.7.60; LR KAT LW.625/282 BL 1.7.60
Piston Rods:-LR.KAT.LW.752/374 BL 1.7.60; LR KAT ADC 527/285 BL 1.7.60; LR kat lw 546/283 BL 1.7.60
CRANKSHAFT OR ROTOR SHAFT LLOYD'S VNA 12803 RC 22.12.59 Control No. 003

FLYWHEEL SHAFT } LLOYD'S VNA 12804 RC 22.12.59 Control No. 003
THRUSTSHAFT }

GEARINGS

INTERMEDIATE SHAFTS :-Lloyds K 1105 4-11-60 LW; FIN M/C 14-12-60 ND

SCREW AND PROP SHAFTS Working:- K126; 18-12-58 ADC; Spare K 1116- 25-11-60 LW.

PROPELLERS Working: CTG 597; 1-361 ND; Spare CTG 617; 2-5-61 ND

OTHER IMPORTANT ITEMS Bilge & Ballast, Oil fuel transfer & booster, lub oil, fuel main Aux SW and EW pumps, oil fuel unit, FD Fan, Boiler feed & circulating pumps, Air compressors & receivers- Cargo pumps etc.

Certificates all attached.

Is the installation a duplicate of a previous case? yes If so, state name of vessel M.T. " BAUSKA"
Date of approval of plans for crankshaft 20.5.59 Straight shafting 20.5.59 Gearing - Clutch -
Separate oil fuel tanks 28.3.61 Pumping arrangements 7.10.57 & 18.1.61 Oil fuel arrangements 7.10.57 & 18.1.61
Cargo oil pumping arrangements 7.10.57 & 10.8.61 Air receivers 11.3.58 Donkey boilers 10.12.59
Dates of examination of principal parts:-
Fitting of stern tube 10.3.61 Fitting of propeller 20.03.61 Completion of sea connections 21.03.61 Alignment of crankshaft in main bearings 8.10.61
Engine checks & bolts 7.10.61 Alignment of gearing - Alignment of straight shafting 7.10.61 Testing of pumping arrangements 9.12.61
Oil fuel lines 6th & 14th 11.61 Donkey boiler supports 22.03.61 Steering machinery 17.12.61 Windlass 14.12.61

Date of Committee FRIDAY 27 APR 1962
Decision + LMC ES }
ABS }
TS (09) } 2.62
SPS }
Construction of M.E. at H.Cegielski, Poznan z/ 27,850.-& £ 5
Examined of Welded Fabrications = z/ 25,065.-& £ 4
- 10% = z/ 1,650.-& £ 2
Install'n of M'ch'y on bd - 10% = z/ 1,485.-& £ 2
Travelling exp. z/ 9,249.30
Date when A/c rendered 31-1-1962

