

Rpt. 4b

See also Aalborg F.E. Report 4b No. 18008 attached

Date of writing report 7-12-60

Received London

Port Gdansk

28 DEC. 1960

No. F.E.M.035

Survey held at Gdynia

No. of visits In shops 21 On vessel

First date 18-7-60

Last date 26-11-60

# FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. \_\_\_\_\_ Name " L E N G K E N G " \_\_\_\_\_ Gross tons 677

Owners Indonesian Government \_\_\_\_\_ Managers \_\_\_\_\_ Port of Registry Djakarta \_\_\_\_\_

Hull built at Gdynia \_\_\_\_\_ By Stocznia im. Komuny Paryskiej \_\_\_\_\_ Yard No. B471/7 \_\_\_\_\_ When 1960-11

Main Engines made at Friedrikshavn \_\_\_\_\_ By Alpha Diesel A/S \_\_\_\_\_ Eng. No. 8647 \_\_\_\_\_ When 1959-12

Gearing made at \_\_\_\_\_ By \_\_\_\_\_ \_\_\_\_\_

Donkey boilers made at \_\_\_\_\_ By \_\_\_\_\_ \_\_\_\_\_

Machinery installed at Gdynia \_\_\_\_\_ By Stocznia im. Komuny Paryskiej \_\_\_\_\_ Blr. Nos. \_\_\_\_\_ When 1960-11

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? No. \_\_\_\_\_ 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 1 \_\_\_\_\_ No. of propellers 1 \_\_\_\_\_ Brief description of propulsion system 2 SA 8 Cyl 290 x 490 mm oil engine direct coupled to propeller.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Alpha Diesel A/S type 498 R.

No. of cylinders per engine 8 \_\_\_\_\_ Dia. of cylinders 290 \_\_\_\_\_ stroke(s) 490 \_\_\_\_\_ 2 or 4 stroke cycle 2 \_\_\_\_\_ Single or double acting single

Maximum approved BHP per engine 960 \_\_\_\_\_ at 310 \_\_\_\_\_ RPM of engine and 310 \_\_\_\_\_ RPM of propeller.

Corresponding MIP \_\_\_\_\_ (For DA engines give MIP top & bottom) Maximum cylinder pressure \_\_\_\_\_ Machinery numeral 192

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 Fresh Water \_\_\_\_\_ Pistons Lubricating oil \_\_\_\_\_ Fuel valves Fuel oil \_\_\_\_\_ 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? Built up seating \_\_\_\_\_ How is the engine started? Compressed air

Can the engine be directly reversed? Yes. \_\_\_\_\_ 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 23-7-59 \_\_\_\_\_ State barred speed range(s), if imposed for working propeller None \_\_\_\_\_ For spare propeller None \_\_\_\_\_ Is a governor fitted? Yes \_\_\_\_\_ Is a torsional vibration damper or detuner fitted to the shafting? No \_\_\_\_\_

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) \_\_\_\_\_

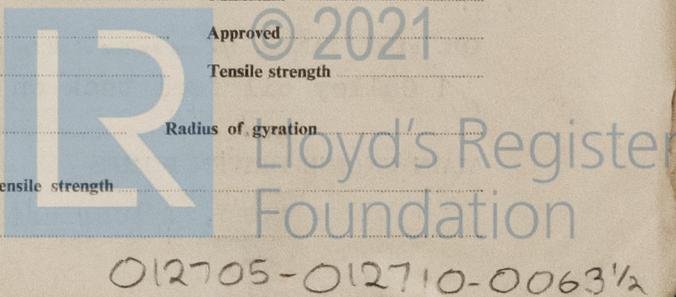
Diameter of journals \_\_\_\_\_ Diameter of crankpins \_\_\_\_\_ Centre \_\_\_\_\_ Breadth of webs at mid-throw \_\_\_\_\_ Axial thickness of webs \_\_\_\_\_ Side \_\_\_\_\_ Pins \_\_\_\_\_ Minimum \_\_\_\_\_

If shrunk, radial thickness around eyeholes \_\_\_\_\_ Are dowel pins fitted? \_\_\_\_\_ Crankshaft material Journals \_\_\_\_\_ Approved \_\_\_\_\_ 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) \_\_\_\_\_



012705-012710-0063 1/2

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.)
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 Material Minimum approved tensile strength
Shaft separate or integral with crank or wheel shaft? Separate Diameter of intermediate shaft 155 Material Steel
Actual 52.8 Kg/mm² Diameter of screwshaft cone at large end 192 mm Is screwshaft fitted with a continuous liner? No.
Diameter of tube shaft. (If these are separate shafts) None Is tube shaft fitted with a continuous liner in way of stern tube None Thickness of screwshaft liner at bearings None Thickness between bearings Material of screwshaft steel Minimum tensile strength 55.2 Kg
Is an approved oil gland fitted? Yes. If so, state type of shaft line arrangement Length of bearing next to and supporting propeller 810 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 2105mm Pitch 1417 mm Built up or solid Solid Total developed surface 1.8 m²
No. of blades 4 Blade thickness at top of root fillet 78.5 mm Blade material Bronze Moment of inertia of dry propeller 680Kg/cm²
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 None. Moment of inertia

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine 1 Can they be declutched? No.
No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 1 55 cubic meter /HR. Port Aft side
HAM No. 60/1574
No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate)
Main Ford 1000L Cap. KAT 323
Aux. Port Ford 60 L HNO C 59/545
Main Aft 1000L Cap. KAT 324
Aux. Stbd. Ford 60 L HNO C 59/544
Aux. Port Aft 60 L. Düsseldorf DF c 8714
How are receivers first charged? Manual 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 1 No. of main engine lubricating oil coolers 1
1 Port Aft side engine room top.

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure
1 Galley oil fuel tank on bridge deck.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose)
1 Main engine F.W. circulating, 1 salt water circulating
1 bilge pump, 1 lubricating oil pump

Table with columns: INDEPENDENT PUMPS, SUCTION, DELIVERY. Rows include Main engine F.W. Circ. (PS), Main engine L.O. Circ(SS), Fire Pump (PS), Bilge Pump (SS Ford), Ballast Pump (SS.Aft), O.F. Trans. Pump (SS), O.F. Service Pump (PS).

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room No. 1 Hold 2 at 65 mm(P&S); No.2 Hold 2 at 65mm P&S
No. and size connected to main bilge line in main engine room 1 at 80mm
In aux. engine room Stbd Aft. Size and position of direct bilge suction in machinery spaces 1 at 80mm
Size and position of emergency bilge suction in machinery spaces 1 at 100mm Stbd For'd
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 the carrying of oil? Yes.

STEAM & OIL ENGINE AUXILIARIES table with columns: Position of each, Type, Made by, Port and No. of Rpt. or Cert., Driven Machinery (For electric generators, state output). Rows include Port, Centre, Starboard.

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- 42 KW Generator
Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of donkey boilers burning 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.) 2 ram hydraulic operated by one HeleShaw pump driven by electric motor, controlled by telemotor. Alternative centre from Poop.
Hand pumps in bridge and steering flat.
Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 3 Hoses with 3 jets and 3 spray nozzles, 2, 10 L portable foam & 3, 6 Kgs portable CO2 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 15-10-60 6 Hrs
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).

Lloyd's Register logo and text: STOCZKA im. KOMUNY PARYSKIEJ, Gdynia, ul. Szecheniewicka 8, 012705-012710-0063 1/2

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 has been installed under Special Survey in accordance with the Rules, approved plans, and Secretary's letters. The material and workmanship are good. The machinery installation has been tested under working conditions and found satisfactory. The installation is eligible in my opinion to be classed with the Society with records

+ L M C 11-60

TS OG 11-60 and notation 2 SA.

*N. Dienes*

Engineer Surveyor to Lloyd's Register of Shipping.  
N. Dienes

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

INTERMEDIATE SHAFTS LLOYDS K 931 ✓ Fin M/C Gdy 30-6-60 N.D.

SCREW AND TUBE SHAFTS LLOYDS K 889 ✓ Fin M/C Gdy 30-6-60 N.D.

PROPELLERS LLOYDS GDANSK CTG.393 ✓

OTHER IMPORTANT ITEMS Steering machinery, Bilge pump, ballast pump, Fire pump, oil fuel transfer pump, Windlass, air receivers.

Copies of Certificates enclosed.

Is the installation a duplicate of a previous case? Yes. If so, state name of vessel "RAMBUTAN", "DUKUH", "DUREN", "DUWET"

Date of approval of plans for crankshaft Straight shafting 17-2-59 Gearing "DJERUK", "LANGSAT" Clutch -

Separate oil fuel tanks 29-1-60 Pumping arrangements 1-3-60 & 18-5-60 Oil fuel arrangements 1-3-60.

Cargo oil pumping arrangements - Air receivers - Donkey boilers -

Dates of examination of principal parts:-

Fitting of stern tube 18-7-60 Fitting of propeller 20-7-60 Completion of sea connections 2-8-60 Alignment of crankshaft in main bearings -

Engine checks & bolts 3-10-60 Alignment of gearing - Alignment of straight shafting 3-10-60 Testing of pumping arrangements 10-11-60

Oil fuel lines 10-11-60 Donkey boiler supports - Steering machinery 15-11-60 Windlass 15-11-60

Date of Committee FRIDAY 24 FEB 1961 Special Survey Fee £ 80-0-0- & ZY 4200

Decision See Rpt. 1.

Expenses ZY 650.-

