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Rpt. 4b

Date of writing report 7.4.64. Received London 17 MAY 1964 Port Rijeka No. 2055
Survey held at Pula No. of visits 44 In shops 11.4.63. Last date 12.3.64.
On vessel

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name Gross tons
Owners Managers Port of Registry Year Month
Hull built at Trogir By "Jozo Lozovina-Mosor" Yard No. 137 When
Main Engines made at Pula By Brod. "Uljanik" Eng. No. 071 When 64 3
Gearing made at By
Donkey boilers made at By Blr. Nos. When
Machinery installed at By When
Particulars of restricted service of ship, if limited for classification
Particulars of vegetable or similar cargo oil notation, if required
Is ship to be classed for navigation in ice? Is ship intended to carry petroleum in bulk?
Is refrigerating machinery fitted? If so, is it for cargo purposes? Type of refrigerant
Is the refrigerating machinery compartment isolated from the propelling machinery space? Is the refrigerated cargo installation intended to be classed?

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 Diesel Engine direct drive
MAIN RECIPROCATING ENGINES. Licence Name and Type No. Burmeister & Wain, 550-VT2BF-110
No. of cylinders per engine 5 Dia. of cylinders 500mm stroke 1100mm 2 stroke cycle 2 Single or double acting single
Maximum approved BHP per engine 3500 at 170 RPM of engine and RPM of propeller.
Corresponding MIP 9,5kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 65kg/cm² Machinery numeral 700
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? through valve 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 2 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 No. of scavenge air coolers 2 Scavenge air pressure at full power 750cm H.W. Are scavenge manifold explosion relief valves fitted? yes
FOUR STROKE ENGINES. Is the engine supercharged? No 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 2 Inlet Exhaust 1 Starting 1 Safety 1
Material of cylinder covers molybdenum steel Material of piston crowns molybdenum steel Is the engine equipped to operate on heavy fuel oil? yes
Cooling medium for: Cylinders fresh water Pistons lub. oil Fuel valves fuel oil Overall diameter of piston rod for double acting engines
Is the rod fitted with a sleeve? No 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? yes Total internal volume of crankcase 36,05m³ No. and total area of explosion relief devices 6=2178cm² 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? compressed 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? Six hours (28th December, 1963)

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 22.7.63. State barred speed range(s), if imposed for working propeller 92-109 RPM For spare propeller 92-109 RPM Is a governor fitted? yes Is a torsional vibration damper or detuner fitted to the shafting?
Where positioned? Type No. of main bearings 7 Are main bearings of ball or roller type? No Distance between inner edges of bearings in way of crank(s) 674mm Distance between centre lines of side cranks or eccentrics of opposed piston engines
Crankshaft type: Built, semi-built, solid. (State which) built
Diameter of journals 420mm Diameter of crankpins 420mm central hole Breadth of webs at mid-thrust 950mm Axial thickness of webs 196/212mm
If shrunk, radial thickness around eyeholes 235mm Are dowel pins fitted? no Crankshaft material Journals cast open hearth Pins 0,20% carbon steel Minimum 44 kg/mm² Approved 44 kg/mm² Tensile strength 44kg/mm²
Diameter of flywheel 1985mm Weight 3200kgs Are balance weights fitted? No Total weight Radius of gyration
Diameter of flywheel shaft 400mm Material forged open hearth Minimum approved tensile strength 44kg/mm²
Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) integral with thrustshaft.

PLEASE RETURN THIS REPORT WITH YOUR FIRST ENTRY.

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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..... 400 mm				
with 115mm central hole		Material.....	Minimum approved tensile strength.....	44kg/cm ²
Shaft separate or integral with crank or wheel shaft?..... integral with flywheel shaft		Diameter of intermediate shaft.....	Material.....	Minimum approved tensile strength.....
Minimum approved tensile strength.....		Diameter of screwshaft cone at large end.....	Is screwshaft fitted with a continuous liner?.....	
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/tube shaft liner.....
bearings.....	Thickness between bearings.....	Material of screw/tube shaft.....	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. Diameter of propeller..... Pitch..... Built up or solid..... Total developed surface.....				
No. of blades.....	Blade thickness at top of root fillet.....	Blade material.....	Moment of inertia of dry propeller.....	
If propeller is of special design, state type.....		Is propeller of reversible pitch type?.....		If so, is it of approved design?.....
State method of control.....		Material of spare propeller.....	Moment of inertia.....	
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).....				
No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate).....				
How are receivers first charged?.....		Maximum working pressure of starting air system.....		Are the safety devices in accordance with the Rules?.....
Has the starting of the main engines been tested and found satisfactory?.....				
COOLERS. No. of main engine fresh water coolers..... No. of main engine lubricating oil coolers.....				
OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure.....				

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room.....

.....

No. and size connected to main bilge line in main engine room..... In tunnel.....

In aux. engine room..... Size and position of direct bilge suction in machinery spaces.....

..... 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?..... 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*).

[illegible]

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 the 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

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Has all the machinery been tried under full working conditions and found satisfactory?

Date and duration of full trial
.....

„ULJANIK“ Builder

BRUGGERADLISTE 1 : SONICA DIZEL MOTOR
PULA

in any features of a novel or experimental nature? (Give particular characteristics (strike out words not applicable).

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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.

This Main Engine, intended for a ship classed with the Society's has been constructed under special Survey of tested materials in accordance with the Society's Rules, Approved plans and Secretary's letters.

The materials and workmanship are good.

The Engine has been tested at the Builders Works under full load conditions with satisfactory results.

The Engine has been opened up, examined and found to be good. The Engine is now packed for dispatch to Shipyard Trogir.

engine not being operated continuously between 92-109 r.p.m. notice board & tachometer to be marked accordingly

J. M. Skrobica

Engine 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.)

Piston Rka. 11816 & 17. Rka. 11990/1,2,3
RODS MF. 24.11.62. MF. 21.12.62.
Con. Rka. 11811-15.
rods: MF. 24.11.62. Cpn. 1983A
CRANKSHAFT ~~OR ROTOR SHAFT~~ VL. 9.5.63.
FLYWHEEL SHAFT Got. 1872
THRUSTSHAFT LE. 2.4.63. Cpn. VL. 9.5.63.
GEARING
INTERMEDIATE SHAFTS
SCREW AND TUBE SHAFTS
PROPELLERS Cyl. Rka. 11951 Rka. 10961 Rka. 12000/1,2,3
covers; MF. 8.12.62; MF. 6.6.62; MF. 3.4.63.
OTHER IMPORTANT ITEMS Rka. 11036/1,2,3;4,5
Crossheads MF. 8.6.62.
Piston Rka. 11916-20. Spare: Rka. 11836/2
crowns: MF. 12.10.62. MF. 28.11.62.
Camshafts: Rka. 11794 Rka. 11989
MF. 23.11.62; MF. 21.12.62; Turbo blowers: WIN. C. 15374 & 5; C. 15388-Air coolers

Is the installation a duplicate of a previous case? Yes Nos. of Engine: 061/2/3
If so, state name of vessel

Date of approval of plans for crankshaft 26.7.62. Straight shafting Gearing Clutch
Separate oil fuel tanks Pumping arrangements Oil fuel arrangements
Cargo oil pumping arrangements Air receivers Donkey boilers
Dates of examination of principal parts:—
Fitting of stern tube Fitting of propeller Completion of sea connections Alignment of crankshaft in main bearings
Engine chocks & bolts Alignment of gearing Alignment of straight shafting Testing of pumping arrangements
Oil fuel lines Donkey boiler supports Steering machinery Windlass

Date of Committee FRIDAY 28 MAY 1965

Decision See Rep. 1.

Special Survey Fee £197-14 + 415.170.-din.
Wel. Const. £10-0 + 21.000.-din.

Trav. Expenses 35.300.-din.
Late Att. 13.800.-din.

Date when A/c rendered

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