

Rpt. 4b

Date of writing report 17.9.1963 Received London 19 DEC 1963 Port Rijeka No. 1891  
Survey held at Macvanska Mitrovica No. of visits In shops 8 First date 16.11.1962 Last date 19.8.1963  
On vessel

## FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name "SITARA" Gross tons 87.50  
East Pakistan Inland Water  
Owners Transport Authority Managers  
Macvanska Mitrovica By Brodogradiliste "SAVA"  
Hull built at Shrewsbury By Rolls-Royce Limited  
Main Engines made at Claveland By Capitol Gear Ins  
Gearing made at By  
Donkey boilers made at By  
Machinery installed at Macvanska Mitrovica By Brodogradiliste "SAVA"

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

2 Oil engine driving through reverse reduction gearbox to 2 screwshafts  
No. of main engines 2 No. of propellers 2 Brief description of propulsion system

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Rolls-Royce C6/TFL type 642600 MOD 2A & 2B  
No. of cylinders per engine 6 Dia. of cylinders 5.125" stroke(s) 6" 2 or 4 stroke cycle 4 SC Single or double acting SA  
Maximum approved BHP per engine 246 at 1800 RPM of engine and 882 RPM of propeller.

Corresponding MIP 1841b/sq.in. (For DA engines give MIP top & bottom) Maximum cylinder pressure 1560 lb/sq.in. Machinery numeral 99  
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? 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 power

Are scavenge manifold explosion relief valves fitted?  
FOUR STROKE ENGINES. Is the engine supercharged? yes Are the undersides of the pistons arranged as supercharge pumps? no No. of exhaust gas driven blowers per engine 1 No. of supercharge air coolers per engine 1 Supercharge air pressure 91b/sq.in. Can engine operate without supercharger? yes

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel 1 Inlet 2 Exhaust 2 Starting — Safety —  
Material of cylinder covers Cast Iron Material of piston crowns Aluminium alloy Is the engine equipped to operate on heavy fuel oil? no

Cooling medium for :—Cylinders FW 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? no Frames? no Entablature? no Is the crankcase separated from the underside of pistons? no Is the engine of crosshead or trunk piston type? trunk Total internal volume of crankcase less than 20 cu.ft. No. and total area of explosion relief devices none Are flame guards or traps fitted to relief devices? — Is the crankcase readily accessible? no If not, must the engine be removed for overhaul of bearings, etc? yes Is the engine secured directly to the tank top or to a built-up seating? built up seating How is the engine started? Electric CAV type

Can the engine be directly reversed? no If not, how is reversing obtained? clutches in reverse reduction gear-boxes  
Has the engine been tested working in the shop? yes How long at full power? 4 hour + 1 hour overload

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system below 600 RPM 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? yes

Where positioned? Fwd. end of engine Type Holst Viscous 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) 4.875" Distance between centre lines of side cranks or eccentrics of opposed piston engines —

Crankshaft type: Built, semi-built, solid. (State which) Solid  
Diameter of journals Centre 3.25" Breadth of webs at mid-throw 5.25" Axial thickness of webs 1.163"  
Side — Pins EN 19 Minimum 55 tons/sq.in.

If shrunk, radial thickness around eyeholes — Are dowel pins fitted? — Crankshaft material Journals " Approved " Tensile strength " Webs " Tensile strength " Radius of gyration 2.44"

Diameter of flywheel 2207" Weight 1201bs Are balance weights fitted? no Total weight 1201bs  
Diameter of flywheel shaft Material no Minimum approved tensile strength

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

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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 \_\_\_\_\_  
 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 \_\_\_\_\_  
 minute at full power \_\_\_\_\_ Gas delivery pressure \_\_\_\_\_ Gas delivery temperature \_\_\_\_\_ Have the turbines and attached equipment been tested work  
 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

Oil operated disc type incorporated in gear-box.

Can the main engine be used for purposes other than propulsion when declutched? no If so, what? \_\_\_\_\_

## STRAIGHT SHAFTING. Diameter of thrustshaft \_\_\_\_\_ Material \_\_\_\_\_ Minimum approved tensile strength \_\_\_\_\_

Shaft separate or integral with crank or wheel shaft? \_\_\_\_\_ Diameter of intermediate shaft 2.756" Material MF Steel

Minimum approved tensile strength 28 tons/sq. in. Diameter of screwshaft cone at large end 3.197" Is screwshaft fitted with a continuous liner? no

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 \_\_\_\_\_

bearings 4.095" Thickness between bearings 3.858" Material of screw/tube shaft \_\_\_\_\_ Minimum approved tensile strength \_\_\_\_\_

Is an approved oil gland fitted? yes If so, state type \_\_\_\_\_ Length of bearing next to and supporting propeller 10.63" & 12.6"

Material of bearing \_\_\_\_\_ In multiple screw vessels is the liner between stern tube and A bracket continuous? no If not, is the exposed length of shafting between \_\_\_\_\_

liners readily visible in dry dock? yes

## PROPELLER. Diameter of propeller 2.82 ft Pitch 1.963 ft Built up or solid Solid Total developed surface 4.2 sq. ft.

No. of blades three Blade thickness at top of root fillet 1.693" Blade material AL.BZ. Moment of inertia of dry propeller 2,1913 lb/sq.

If propeller is of special design, state type \_\_\_\_\_ Is propeller of reversible pitch type? no If so, is it of approved design? \_\_\_\_\_

State method of control \_\_\_\_\_ Material of spare propeller AL.BZ. Moment of inertia 2,1913 lb/sq.

## 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? X

## COOLERS. No. of main engine fresh water coolers 2 No. of main engine lubricating oil coolers 2 ME & 2G/Box.

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 2; ER P & S service of fuel tank

1-LQ G/Box pump 1-FO pump

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) Per each engine 1-FW pump; 1-SW pump; 1-Bilge pump 1-LQ pump

1-LQ G/Box pump 1-FO pump

1-LQ G/Box pump 1-FO pump

1-LQ G/Box pump 1-FO pump

1-LQ G/Box pump 1-FO pump

1-LQ G/Box pump 1-FO pump

1-LQ G/Box pump 1-FO pump

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												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	
General Service Pump.	X	X				X				X			X			X
Aux Engine driven																
15 m <sup>3</sup> /hr.																

BILGE SUCTIONS/ No. and size in each compartment 2 Chain locker 1.81"; 2 Fwd. crew accommodation 1.81";

3 ER. 1.81" 1 aft crew accommodation 1.81; 1 after peak 1.81"

No. and size connected to main bilge line in main engine room 2; 1.81"

In aux. engine room \_\_\_\_\_ Size and position of direct bilge suction in machinery spaces 1.81" Cr. aft

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? no Do the piping arrangements comply with the Rules

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 ER.	EV 100 4SCSA	Motorfabriken BUKN A/S Kalundborg	Copenhagen 24.8.1962	6KW.DC.115 Volts and 0.75KW.DC. 24 Volts Generators and general service pump of 15 cu.m. capacity

Is electric current used for essential services at sea? no If so, state the minimum No. and capacity of generators required in order that the ship may operate

at sea \_\_\_\_\_ 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) Hand operated

Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements Portable extinguishers

2 of 12 gal froth and 2 of 2 gal. CO2 in ER.

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 19.8.1963. 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).



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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 machinery of this vessel have been constructed and installed under Special Survey in accordance with the Society's Rules, Approved plans and Secretary letters.

The material and Workmanship are good.

On completion of instalation the machinery, steering gear, windlass pumping and ventilat arrangements were examined under full power condition at sea with satisfactory results.

This ship is eligible in my opinion to be classed with the Society having notation + LLOYD'S 8/63; TS(OG) p&s 8/63.

J. Racki

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.))

RODS LS.635; LS.745; LS.630; LS.696; LS.557; LS.563; LS.538; LS.649; LS.614; LS.613; LS628.

CRANKSHAFT OR ROTOR SHAFT ~~XXXXXXXXXX~~ R 5579 & R5541

~~FLYWHEEL SHAFT~~

~~THRUST SHAFT~~

~~GEARING~~

INTERMEDIATE SHAFTS JR 20; JR 21

SCREW ~~AND TUBE~~ SHAFTS Rka.No.12417 & Rka.No.12417B

PROPELLERS Rka.No.12553 & Rka.No.12551

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? yes If so, state name of vessel "SURATIYA"

Date of approval of plans for crankshaft Straight shafting 28.3.1962. Gearing Clutch  
Separate oil fuel tanks Pumping arrangements 24.4.1962. Oil fuel arrangements 18.6.1962.

Cargo oil pumping arrangements Air receivers Donkey boilers

Dates of examination of principal parts:—

Fitting of stern tube 17.2.1963 • Fitting of propeller 23.4.1963 • Completion of sea connections 23.4.1963 • Alignment of crankshaft in main bearings  
Engine chocks & bolts 25.6.1963. Alignment of gearing 25.6.1963. Alignment of straight shafting 25.6.1963. Testing of pumping arrangements 17.8.  
Oil fuel lines 17.8.1963. Donkey boiler supports — Steering machinery 19.8.1963. Windlass 19.8.1963.

Date of Committee

Decision

Special Survey Fee £50-0-0 + 105.000.-din

Expenses 38.000.din.  
Late attend. 1.534.-din.