

23 MAR 1964

Rpt. 4b

Date of writing report 4.3.64 Received London Hamburg Port No. 13425
Survey held at Elmshorn No. of visits 7 On vessel 7 First date 13.9.63 Last date 6.2.64

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name "SWTA JAMUNA" Gross tons
Owners Inland Water Transport Authority East Pakistan Managers - Port of Registry Narayanganj
Hull built at Elmshorn By Messrs. Kremer Sohn Yard No. 1103 Year Month 64.2
Main Engines made at Köln By Messrs. Deutz AG. Eng. No. p. 3682148-55 s. 3529867-74 When 63.8
Gearing made at Hameln By Messrs. Reintjes GmbH. Gear No. s. 30544 p. 30544 When 63.4
Aux./donkey boilers made at - By - Blr. Nos. - When -
Machinery installed at Elmshorn By Messrs. Kremer Sohn When 64.2

Particulars of restricted service of ship, if limited for classification for River and Estuary Service
Particulars of vegetable or similar cargo oil notation, if required -
If ship is to be classed for navigation in ice, state whether Class 1, 2 or 3 no Is ship an oil tanker? no
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 should 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 all other relevant particulars must be given and the port and report number should be stated.

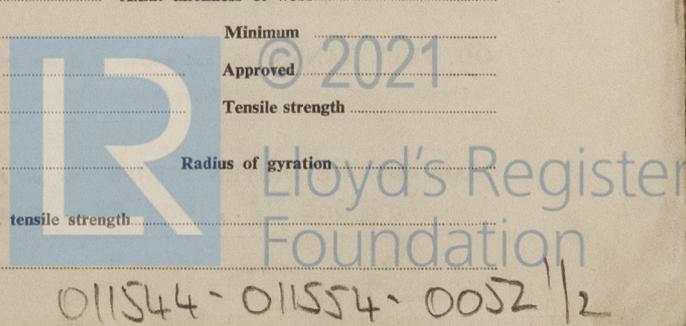
No. of main engines 2 No. of propellers 2 Brief description of propulsion system two oil engines over reversible single red.gears to straight shafting
MAIN RECIPROCATING ENGINES. Licence Name and Type No. Deutz heavy oil engines SBA8M517
No. of cylinders per engine 8 Dia. of cylinders 130 mm stroke(s) 170 mm 2 or 4 stroke cycle 4 Single or double acting single
Maximum BHP per engine approved for this installation 230 at 1350 RPM of engine and 386 RPM of propeller.
Corresponding MIP 10.2 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 70 kg/cm² Machinery numeral 92
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 full power
Are scavenge manifold explosion relief valves fitted?

TWO AND 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?
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 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? 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? How is the engine started? electrically
Can the engine be reversed? no If not, how is reversing obtained? by reversing reduction gear
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 7.5.63 State barred speed range(s), if imposed engines not below 500 RPM for working propeller For spare propeller Is a governor fitted? yes Is a torsional vibration damper or detuner fitted to the shafting?

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
If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material: Journals Pins Minimum Approved Tensile strength Webs
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)



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 85 mm Material roller bearing Minimum approved tensile strength _____

Shaft separate or integral with crank or wheel shaft? gear output shaft Diameter of intermediate shaft _____ Material _____
bronze liners in way A bracket bearings and oil glands
 Minimum approved tensile strength _____ Diameter of screwshaft cone at large end 105 mm 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 liner at bearings 11 mm Thickness between bearings _____ How is the after end of the liner made watertight in the propeller boss? _____
 Material of screw/tube shaft SM-steel Minimum approved tensile strength _____ Is an approved oil gland fitted? yes If so, state type Deutsche Wert Simplex
 Length of bearing next to and supporting propeller 400 mm Material of bearing rubber 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

PROPELLERS If of special design, state type _____ no Is it of reversible pitch type? n o
 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	<u>1250 mm</u>	<u>1040 mm</u>	<u>solid</u>	<u>0.2663 m²</u>	<u>4</u>	<u>37.5 mm</u>	<u>bronze</u>	<u>48.7 kg/cm²</u>	<u>46.24 kg/cm²</u>				
Spare													

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 2 No. of main engine lubricating oil coolers 2

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure two, top ER-casing each 630 ltrs.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) _____
One SW., one FW., one lub.oil each engine

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	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
<u>Stbd. aux. engine attached bilge and fire pump 25 m³/h</u>	X	X	X			X				X			X		
<u>Port aux. engine attached bilge and fire pump 25 m³/h</u>	X	X	X			X				X			X		
<u>ED.OF.transfer pump pt.ER</u>				X									X		

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room Fwd. side spaces port and stbd.aft. 1x50 mm dia. each, empty spaces midships port and stbd.aft. 1x50 mm dia. each, after space centre fwd. 1x50 mm dia.

No. and size connected to main bilge line in main engine room stbd.fwd. 1x50 mm dia., port aft. 1x50 mm dia., centre aft 1x50 mm dia.

In aux. engine room _____ Size and position of direct bilge suction in machinery spaces centre fwd. 1x50 mm dia.

Size and position of emergency bilge suction in machinery spaces port and stbd.aft. 1x32 mm dia. each

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 including special requirements for oil tankers, ships carrying cargo oil or classed for navigation in ice Class 1, 2 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)
<u>Stbd.ER.platform</u>	<u>oil engine</u>	<u>Deutz AG</u>	<u>KLN 63/575</u>	<u>12 kW-one bilge & fire pump</u>
<u>Port ER.platform</u>	<u>oil engine</u>	<u>Deutz AG</u>	<u>KLN 63/805</u>	<u>12 kW-one bilge & fire pump</u>

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 1x12 kW Is an electric generator driven by Main Engine? no

STEAM INSTALLATION. No. of aux/donkey boilers burning oil fuel _____ W.P. _____ Type _____

Position _____ Is a superheater fitted? _____ Are these boilers also heated by exhaust gas? _____ No. of aux./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 aux./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 including particulars of alternative means of steering) _____
hand operated

Have the Rule Requirements for fire extinguishing arrangements been complied with? yes Brief description of arrangements one hydrant in ER with hose and combined nozzle, one 45 ltr. foam extinguisher, one CO₂, two 9.5 ltr. foam, hand pump 58 ltr./min on deck

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 6.2.64 - 8 hrs. Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) _____

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.

These engines have been examined during construction, properly installed in the above ship and are eligible in my opinion to be classed with the notation LMC 2.64 and the notation TS(OG).

A notice board has been fitted at the control stations:-

Main engines not to be operated continuously below 500 RPM.

Note:- No gear hammer was noted at any revolutions.

Robert Thomas

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

CRANKSHAFT OR ROTORSHAFT

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING LLOYD'S HNO 30544 25.3.63 HB, LLOYD'S HNO 30545 28.3.63 HB

INTERMEDIATE SHAFTS

SCREW AND TUBE SHAFTS LLOYD'S HAM 2061 A+B 26.7.63 AK

PROPELLERS LLOYD'S HAM 2755 2756 18.10.63 AK

OTHER IMPORTANT ITEMS Sterntubes LLOYD'S HAM 2653 A+B 4.10.63 AK

Is the installation a duplicate of a previous case? yes If so, state name of vessel _____ Yard No. 1102

Date of approval of plans for crankshaft _____ Straight shafting 8.1.63 Gearing _____ Clutch _____

Separate oil fuel tanks 25.7.63 Pumping arrangements 24.7.63 Oil fuel arrangements 24.7.63

Cargo oil pumping arrangements _____ Air receivers _____ Aux./donkey boilers _____

Dates of examination of principal parts:-

Fitting of stern tube 12.12.63 Fitting of propeller 29.1.64 Completion of sea connections 10.1.64 Alignment of crankshaft in main bearings _____

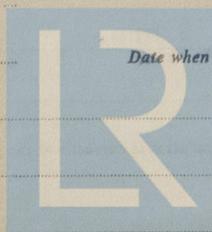
Engine checks & bolts 17.1.64 Alignment of gearing 17.1.64 Alignment of straight shafting 17.1.64 Testing of pumping arrangements 6.2.64

Oil fuel lines 17.1.64 Donkey boiler supports _____ Steering machinery 3.2.64 Windlass 6.2.64

Date of Committee MONDAY 27 APR 1964 Special Survey Fee £ 65.15.0

Decision Deferred for General Exam

Expenses £ 7.0.0



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