

Rpt. 4b

C1/69903/13/590011. B.25819. ✓

Date of writing report 15.12.59. Received London Nottingham. No. FE.1630.
Survey held at Lincoln. No. of visits 4. In shops 1.12.58. Last date 20.11.59.
On vessel

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name Gross tons
Owners North West Tugs Limited. Managers Port of Registry Year Month
Hull built at Birkenhead By M/S. Cammell Laird & Co. Ltd., Yard No. 1298. ✓ When
Main Engines made at Lincoln By Ruston & Hornsby Ltd., Eng. No. 444229. ✓ When
Gearing made at Slough By Modern Wheel Drive Ltd., Blr. Nos. When
Donkey boilers made at By 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 One. No. of propellers One. Brief description of propulsion system Reverse/Reduction Gear. Flexible Coupling.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Ruston & Hornsby Ltd., Type 6ATCM. (Supercharged)

No. of cylinders per engine 6 Dia. of cylinders 12 1/2" stroke(s) 14 1/2" 2 or 4 stroke cycle 4 Single or double acting SA.

Maximum approved BHP per engine 1080. at 500 RPM of engine and 166.7 RPM of propeller.

Corresponding MIP 188 (For DA engines give MIP top & bottom) Maximum cylinder pressure 1370 R.S.I. Machinery numeral 216

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?

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 One. No. of supercharge air coolers per engine One. Supercharge air pressure 5 p.s.i. Can engine operate without supercharger? Yes.

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel One. Inlet One. Exhaust One. Starting One. Safety One.

Material of cylinder covers C.I. Material of piston crowns C.I. Is the engine equipped to operate on heavy fuel oil? No.

Cooling medium for :—Cylinders Water. Pistons None. Fuel valves None. 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 Piston. Total internal volume of crankcase 106.5 c/ft. No. and total area of explosion relief

devices 3 Bicara. 84 sq. ins. 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? How is the engine started? Air.

Can the engine be directly reversed? No. If not, how is reversing obtained? Reverse/Reduction.

Has the engine been tested working in the shop? Yes. How long at full power?

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 28.5.59. State barred speed range(s), if imposed (provisional)

for working propeller 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 8 Are main bearings of ball or roller

type? No. 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) C.G.F. Solid. 22 1/4" major.

Diameter of journals 10 1/2" Diameter of crankpins Centre 9 1/2" Ellipsoidal 4 1/2" minor.

Side Breadth of webs at mid-throw 19" Axial thickness of webs 3 3/4"

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

Webs Tensile strength Moment of One Balance Weight.

Diameter of flywheel 4'0" Weight 2756 lbs. Are balance weights fitted? Yes. Total weight 1808 lbs. ins. Radius of gyration

Diameter of flywheel shaft Material Steel. 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 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.

Oil operated M.W.D. Reverse/Reduction Gear Box. Metalastik Flex Coupling

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 Material

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 at 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 1 Can they be declutched? Yes.

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 1 Blower Intercooler - 1.

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 1- Fresh water circulating 1- Lub. Oil Feed 2- Salt water circulating 1- Lub. Oil Scavenging

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P/c

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 engine has been built under Special Survey in accordance with the Approved Plans and the Regulations of the Society, materials and workmanship being good.

On completion, the engine was tried in the Shops under working conditions driving against brake loading; running at varying loads and speeds with satisfactory results.

The machinery has been forwarded for installation in the vessel.

Explosion relief device and Flame Deflector fitted to each crankcase door.

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W.D. 107

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 LL.1561(2). 1566. 1569. 1562. 1568.

CRANKSHAFT OR ROTORSHAFT LL.R.4494. VS.8330A.

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING Hindmarch/M.W.D. No.12320. M2WR.5.

INTERMEDIATE SHAFTS

SCREW AND TUBE SHAFTS

PROPELLERS

OTHER IMPORTANT ITEMS

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

Date of approval of plans for crankshaft 27.8.58. 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 crank shaft in main bearings

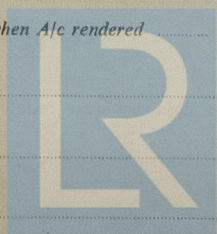
Engine chocks & bolts Alignment of gearing Alignment of straight shafting Testing of pumping arrangements

Oil fuel lines Donkey boiler supports Steering machinery Windlass

Date of Committee Special Survey Fee £87.

Decision Expenses Nil.

Date when A/c rendered



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Foundation