

Ship and give
as possible.

Rpt. 4b

Date of writing report 15-6-60 Received London Port SUNDERLAND No. 37321
Survey held at SUNDERLAND In shops 71 19th OCTOBER 1959 18th MAY 1960
No. of visits On vessel First date Last date

and

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FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

"MOANA ROA"

No. in R.B. Name GRANGEMOUTH DOCKYARD CO LTD N° 526 Gross tons

Owners Managers Port of Registry

Hull built at GRANGEMOUTH By GRANGEMOUTH DOCKYARD CO LTD Yard No. 526 Year Month When 1960

Main Engines made at SUNDERLAND By G. CLARK (SUNDERLAND) LTD SOUTH DOKK Eng. No. 1590 A+B. When 1960

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.

Shipping.

No. of main engines TWO No. of propellers TWO Brief description of propulsion system SULZER DIRECT REVERSING OIL ENGINE

MAIN RECIPROCATING ENGINES. Licence Name and Type No. CLARK SULZER TYPE 7TAD 36 SUPERCHARGED

No. of cylinders per engine 7 Dia. of cylinders 3607/- stroke(s) 6607/- 2 or 4 stroke cycle 2 Single or double acting SINGLE

Maximum approved BHP per engine 1540 at 250 (TAINAL) RPM of engine and 250 (TAINAL) RPM of propeller.

Corresponding MIP 7.3 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 70 kg/cm² Machinery numeral 616

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 the pistons arranged to crankshaft?

Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? PORTS IN CYL. No. and type of mechanically driven scavenge pumps or blowers per engine and how driven SIX SCAVENGE PUMPS, DRIVEN BY LEVER FROM CONNECTING ROD

No. of exhaust gas driven scavenge blowers per engine ONE Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? YES

Is a stand-by or emergency pump or blower fitted, state how driven ONE PER ENGINE No. of scavenge air coolers ENGINE Scavenge air pressure at full power 9.0 LB/IN² Are scavenge manifold explosion relief valves fitted? YES

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 ONE Inlet NONE Exhaust NONE Starting ONE Safety ONE

Material of cylinder covers CAST IRON Material of piston crowns CAST IRON Is the engine equipped to operate on heavy fuel oil? NO

Cooling medium for:—Cylinders FRESH WATER Pistons LUB OIL Fuel valves FRESH WATER Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? Is welded construction employed for: Bedplate? NO Frames? 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 236 cu ft. No. and total area of explosion relief

devices 7-2730 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? 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? 6 HRS.

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 28-8-59 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? 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) 4387/- 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 2507/- Diameter of crankpins 2407/- Breadth of webs at mid-throw 3807/- Axial thickness of webs 1207/-

Minimum Pins 3.11 Approved 32 TONS/IN²

Are dovetail pins fitted? Crankshaft material Journals S.M. Webs STEEL Tensile strength

Diameter of flywheel 12507/- Weight 1350 Kg. Are balance weights fitted? YES Total weight 49.2 Kg. Radius of gyration 3007/-

Diameter of flywheel shaft 2507/- Material S.M. STEEL Minimum approved tensile strength 32 TONS/IN²

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) INTEGRAL WITH THRUST SHAFT

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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 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 described herein has been built under special survey in accordance with the Secretary's letters, approved plans and Rule Requirements. Materials and workmanship are good.

Full power trials on the test bed were carried out with satisfactory results.

The engines are eligible in my opinion for installation on a classed vessel with the record of $\frac{1}{2}$ LMC (WITH DATE) OIL ENG., when the engines have been installed and tested under full power to the satisfaction of the Society's Surveyors.

These engines are intended for installation on board Messrs Grangemouth Dockyard Co. Ltd. Yards No 526.

J.B. Gray

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 CONNECTING:- LLOYDS SUNDERLAND 4666, 4669, 4634 28-1-60. F.B.G.:- 4742 4733, 4728 (20RF) 27-1-60. F.B.G. 4485 4564, 4549 (20RF) 3-11-59. F.B.G. 4478 (20RF), 4471, 5-11-59 F.B.G. (SPARE 4857, 4276 (20RF) 14-6-60 F.B.G.)
CRANKSHAFTS:- LLOYDS BIRMINGHAM 56790 AS 9-2-60, 56757 AS 31-12-59.

FLYWHEEL SHAFTS AS THRUST SHAFTS.

THRUST SHAFTS LLOYDS SUNDERLAND, 9457 - 26-2-60 F.B.G. 9456 15-1-60 F.B.G.

GEARING

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 1-1-60 Straight shafting - Gearing - Clutch -

Separate oil fuel tanks — Pumping arrangements — Oil fuel arrangements —

Cargo oil pumping arrangements — Air receivers 26-8-59 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 15-1-60
26-2-60

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

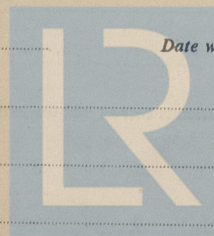
Oil fuel lines — Donkey boiler supports — Steering machinery — Windlass —

Date of Committee GLASGOW - 6 SEP 1960 CONST. Special Survey Fee £ 244 - 0 - 0

Decision SEE ACCOMPANYING MACHINERY REPORT

Expenses

Date when A/c rendered 22 JUN 1960



Lloyd's Register Foundation