

# REPORT ON OIL ENGINE MACHINERY.

24954  
15 JUL 1953

Date of writing Report 6<sup>th</sup> JULY 1953 When handed in at Local Office 10<sup>th</sup> JULY 1953 Port of GREENOCK Received at London Office

No. in Survey held at GREENOCK Date, First Survey 19/3/52 Last Survey 29/6/1953  
Reg. Book. Number of Visits 112

91670 on the Single Twin Triple Quadruple Screw vessel "BEDFORD" Tons Gross 12578.32  
Net 7306.00

Built at PORT GLASGOW By whom built LITHGOWS LTD., (KINGSTON) Yard No. 1070 When built 6/1953

Engines made at GREENOCK By whom made J.G. KINCAID & CO. LTD. Engine No. K239 When made 6/1953

Donkey Boilers made at GREENOCK By whom made S.E. BOILERS - J.G. KINCAID & CO. LTD. Boiler No. K239 When made 6/1953

Brake Horse Power { Maximum \* 8100 Service ✓ Owners BLANDFORD SHIPPING CO. LTD. Boiler No. 421 When made 6/1953  
Port belonging to LONDON

M.N. as per Rule 1620 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES

Trade for which vessel is intended CARRYING PETROLEUM IN BULK.

OIL ENGINES, &c. - Type of Engines KINCAID - BURMEISTER & WAIN 2 or 4 stroke cycle 2 Single or double acting SINGLE

Maximum pressure in cylinders 700 lbs/sq. in. Diameter of cylinders 750mm Length of stroke MAID 1500 No. of cylinders 7 No. of cranks 7

Mean Indicated Pressure 6.47 kg/cm<sup>2</sup> Span of bearings (i.e., distance between inner edges of bearings in way of a crank) 1492mm Is there a bearing between each crank YES Revolutions per minute { Maximum 112 Service ✓

Flywheel dia. 2800mm Weight 13030kg. Moment of inertia of flywheel (kg. m. sec<sup>2</sup>) 1529 Means of ignition COMP. Kind of fuel used DIESEL OIL.

balance wts. (kg. m. sec<sup>2</sup>) 1090.5

Crank Shaft, { Solid forged As APPROVED dia. of journals 575mm Crank pin dia. 575 Crank webs { Mid. length breadth 1340 Thickness parallel to axis 300  
All built As APPROVED as fitted 575mm Mid. length thickness 300 shrunk Thickness around eye-hole 307.5

Flywheel Shaft, diameter As APPROVED Intermediate Shafts, diameter As APPROVED Thrust Shaft, diameter at collars As APPROVED

(Integral with thrust) fitted 575 as fitted 17 1/2" as fitted 575

Tube Shaft, diameter As APPROVED Screw Shaft, diameter As APPROVED Is the screw shaft fitted with a continuous liner { YES

as fitted 21" as fitted 3 1/2" as fitted 3 1/2" Is the after end of the liner made watertight in the propeller boss YES

Bronze Liners, thickness in way of bushes As APPROVED Thickness between bushes As APPROVED Is the after end of the liner made watertight in the propeller boss YES

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner ✓

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Is an approved Oil Gland fitted at the after end of stern tube No If so, state type ✓

Propeller, dia. 18.5' Pitch 15.48 Max. No. of blades 4 Material BRONZE whether moveable FIXED Total developed surface 147.6 sq. feet

Moment of inertia of propeller including entrained water (kg. m. sec<sup>2</sup>) 2713.5 Kind of damper, if fitted NONE

Method of reversing Engines DIRECT Is a governor or other arrangement fitted to prevent racing of the engine YES Means of lubrication FORCED Thickness of cylinder liners 64mm Are the cylinders fitted with safety valves YES Are the exhaust pipes and silencers water cooled

lagged with non-conducting material YES If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine ✓ Cooling Water Pumps, No. and how driven 2FW (I.M.E. & I STEAM) Working F.W. 1

S.W. 1 Spare F.W. 1 S.W. 1 Is the sea suction provided with an efficient strainer which can be cleared within the vessel YES

Bilge Pumps worked from the Main Engines, No. and capacity NONE Can one be overhauled while the other is at work ✓

Pumps connected to the Main Bilge Line { No. and capacity of each 1 - BALLAST PUMP 9' x 10' x 10' 170 TONS/HR. | 1 - BILGE PUMP 7' x 8' x 8' 100 TONS/HR.  
How driven STEAM. | STEAM.

Is the cooling water led to the bilges No If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements ✓

Ballast Pumps, No. and capacity 1 x 170 TONS/HR. Power Driven Lubricating Oil Pumps, including spare pump, No. and size [I.M.E.D. 435 TONS/HR. 1 STEAM, " (18" x 18" x 18")

Are two independent means arranged for circulating water through the Oil Cooler YES Branch Bilge Suctions 4"

No. and size: - In machinery spaces 3 x 4", ENG. C/DAM 1 x 2 1/2" In pump rooms AUX. FORD. 1 x 2 1/2" MAIN 2 x 4" 12 EACH.

In holds, FORD. 2 1/2" PORT. 2 1/2" STARBO. 12 C/DAMS - FORD. 1 x 4", AFT 1 x 4"

Direct Bilge Suctions to the engine room bilges, No. and size 1 x 8", 1 x 5 1/2"

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes YES Are the bilge suction in the machinery spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges YES

Are all Sea Connections fitted direct on the skin of the Ship YES Are they fitted with valves or cocks BOTH Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates YES Are the overboard discharges above or below the deep water line ABOVE

Are they each fitted with a discharge valve always accessible on the plating of the vessel YES Are the blow off cocks fitted with a spigot and brass covering plate YES

What pipes pass through the bunkers NONE How are they protected ✓

What pipes pass through the deep tanks NONE Have they been tested as per Rule ✓

Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times YES

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another YES Is the shaft tunnel watertight NONE Is it fitted with a watertight door ✓ worked from ✓

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ✓

Main Air Compressors, No. ✓ No. of stages ✓ diameters ✓ stroke ✓ driven by ✓

Auxiliary Air Compressors, No. 2 No. of stages 2 diameters 9 1/4" x 4" stroke 7 1/2" driven by STEAM ENGINES.

Small Auxiliary Air Compressors, No. ✓ No. of stages ✓ diameters ✓ stroke ✓ driven by ✓

What provision is made for first charging the air receivers STEAM DRIVEN AIR COMPRESSORS

Scavenging Air Blowers, No. 2 How driven MAIN ENGINE

Auxiliary Engines Have they been made under survey DIESEL - YES Engine Nos. STEAM - 46641 & 46643, DIESEL - 332499

Makers name STEAM - SUNDERLAND FORGE Position of each in engine room STARBO. ENG. RM. FORD. FLOOR PLATE LEVEL.

DIESEL - RUSTON & HORNSBY LTD. Report No. (DIESEL) NOT. C. 16294.

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**AIR RECEIVERS:**—Have they been made under survey... **YES** State No. of report or certificate... ✓  
 State full details of safety devices... **FUSIBLE PLUGS ON RECEIVERS. RELIEF VALVE FITTED IN CHARGING LINE.**  
 Can the internal surfaces of the receivers be examined and cleaned... **YES** Is a drain fitted at the lowest part of each receiver... **YES**  
 Injection Air Receivers, No... ✓ Cubic capacity of each... ✓ Internal diameter... ✓ thickness... ✓  
 Seamless, welded or riveted longitudinal joint... ✓ Material... ✓ Range of tensile strength... ✓ Working pressure... ✓  
 Starting Air Receivers, No... **2** Total cubic capacity... **1100 FT<sup>3</sup>** Internal diameter... **1" ENDS 15-10 1/2"** thickness... **15"**  
 Seamless, welded or riveted longitudinal joint... **RIVETED** Material... **STEEL** Range of tensile strength... **29/33** Working pressure... **350 lbs/IN<sup>2</sup>**

**ARE DONKEY BOILERS FITTED** **YES** If so, is a report now forwarded... **YES**  
 Is the donkey boiler intended to be used for domestic purposes only... **No**  
**PLANS:** Are approved plans forwarded herewith for shafting... **YES** Receivers... **YES** Separate fuel tanks... **✓**  
 Donkey boilers... **YES** General pumping arrangements... **YES (WITH SHIP PLANS)** Pumping arrangements in machinery space... **YES**  
 Oil fuel burning arrangements... **YES**  
 Have Torsional Vibration characteristics been approved... **YES** Date and particulars of approval... **4/2/52. APPROVED FOR SERVICE SPEED OF 112 R.P.M.**

**SPARE GEAR.**  
 Has the spare gear required by the Rules been supplied... **YES** State if for "short voyages" only... **No**  
 State the principal additional spare gear supplied... **COMPLETE LIST OF SPARE GEAR ACCOMPANIES REPORT.**

The foregoing is a correct description for **JOHN G. KINCAID & COY. LIMITED.**  
 Chief Draughtsman.

Dates of Survey while building: (1952) MAR. 19, MAY 19, 30, JUNE 23, JULY 25, AUG. 18, 25, 27, 29, SEPT. 18, 12, 15, 23, 26, OCT. 1, 9, 15, 20, 24, 31, NOV. 5, 10, 12, 17, 21, 24, 28, DEC. 1, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 23, 25, 27, 30, APR. 1, 2, 3, 7, 8, 10, 16, 17, 22, 24, 27, 29, MAY 4, 5, 6, 8, 11, 13, 14, 20, 22, 27, 29, JUNE 1, 3, 4, 5, 9, 11, 12, 18, 22, 25, 26, 29.  
 Total No. of visits... **112**  
 Dates of examination of principal parts—Cylinders... **30/5/52 to 25/3/53** Covers... **✓** Pistons... **24/10/52 to 22/4/53** Rods... **24/10/52 to 19/1/53** Connecting rods... **24/10/52 to 12/4/53**  
 Crank shaft... **18/8/52 to 12/4/53** Flywheel shaft... **INTEGRAL WITH Thrust shaft 18/8/52 to 12/4/53** Intermediate shafts... **18/2/53** Tube shaft... **✓**  
 Screw shaft... **19/1/53 to 18/2/53** Propeller... **23/2/53** Stern tube... **8/18/52 to 12/3/53** Engine seatings... **12/3/53** Engine holding down bolts... **12/6/53**  
 Completion of fitting sea connections... **12/3/53** Completion of pumping arrangements... **29/6/53** Engines tried under working conditions... **29/6/53**  
 Crank shaft, material... **23484 A & B** Identification mark... **H.K.T. 12/4/53** Flywheel shaft, material... **AS THRUST SHAFT** Identification mark... **✓**  
 Thrust shaft, material... **23484 B** Identification mark... **H.K.T. 12/4/53** Intermediate shafts, material... **23484 D** Identification marks... **16755/6**  
 Tube shaft, material... **✓** Identification mark... **✓** Screw shaft, material... **23484 D** Identification mark... **✓**  
 Identification marks on air receivers:  
 INBOARD: **C 4368 BLOYOS TEST WP 350 lbs H.K.T. 11/3/53**  
 OUTBOARD: **C 4369 BLOYOS TEST WP 350 lbs H.K.T. 8/4/53**

Welded receivers, state Makers' Name... **✓**  
 Is the flash point of the oil to be used over 150°F... **YES**  
 Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with... **YES**  
 Full description of fire extinguishing apparatus fitted in machinery spaces... **STEAM & CHEMICAL. COMPLETE LIST OF GEAR APPENDED.**  
 Is the vessel fitted for carrying oil as cargo... **YES** If so, have the requirements of the Rules been complied with... **YES**  
 What is the special notation desired... **✓**  
 If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with... **✓**  
 Is this machinery duplicate of a previous case... **No** If so, state name of vessel... **✓**

General Remarks (State quality of workmanship, opinions as to class, Speed restrictions, &c.) **THE MACHINERY OF THIS VESSEL HAS BEEN CONSTRUCTED UNDER SPECIAL SURVEY IN ACCORDANCE WITH THE APPROVED PLANS AND THE RULES OF THIS SOCIETY. THE MATERIALS AND THE WORKMANSHIP ARE GOOD. THE MACHINERY HAS BEEN EFFICIENTLY INSTALLED ON BOARD THE VESSEL AND TRIED UNDER FULL WORKING CONDITIONS WITH SATISFACTORY RESULTS. THE MACHINERY IS ELIGIBLE, IN MY OPINION, TO BE CLASSED IN THE REGISTER BOOK WITH THE RECORD OF + LMC 6/53 AND THE NOTATIONS TS CL, 3 DB'S 180 lbs/IN<sup>2</sup>, OIL ENGINE. N.B. ENGINE APPROVED FOR A SERVICE SPEED OF 112 R.P.M.**

The amount of Entry Fee **ENGINE 271-0-0**  
**INSTALLATION 150-10-0**  
**SPECIAL AIR RECEIVERS 20-0-0**  
 Donkey Boiler Fee... **£ 90-0-0**  
 Travelling Expenses (if any) **£**  
 Committee's Minute... **GLASGOW 14 JUL 1953**  
 Assigned... **+ LMC 6.53. Oil Engine 3 D.B. 180 lb.**  
 When applied for... **11th JULY 1952**  
 When received... **19**  
 H.K. Taylor.  
 Engineer Surveyor to Lloyd's Register of Shipping.

