

113 AUG 1958

Rpt. 4b

Date of writing report 6-8-58 Received London Port Glasgow No. 48647
 Survey held at GRANGEMOUTH No. of visits In shops 10 First date 8-1-58 Last date 3-6-58
 On vessel

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name "FRED EVERARD" Gross tons 1542.
 Owners F.T. EVERARD & SONS LTD. Managers Port of Registry LONDON.
 Hull built at GRANGEMOUTH By GRANGEMOUTH DOCKYARD Co. Yd. 514. Year Month 58-6
 Main Engines made at TROLLHÄTTAN By NYDQVIST & HOLM A.B. Eng. No. 1747 When 57-11
 Gearing made at By
 Donkey boilers made at By Mr. Nos. When
 Machinery installed at GRANGEMOUTH By GRANGEMOUTH DOCKYARD Co. Yd. When 58-3

Particulars of restricted service of ship, if limited for classification
 Particulars of vegetable or similar cargo oil notation, if required NONE.
 Is ship to be classed for navigation in ice? No. Is ship intended to carry petroleum in bulk? No.
 Is refrigerating machinery fitted? YES If so, is it for cargo purposes? No. Type of refrigerant
 Is the refrigerating machinery compartment isolated from the propelling machinery space? YES Is the refrigerated cargo installation intended to be classed? No.

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 1 No. of propellers 1 Brief description of propulsion system TWO STROKE CYCLE SINGLE ACTING DIRECT COUPLED.

MAIN RECIPROCATING ENGINES. Licence Name and Type No.
 No. of cylinders per engine Dia. of cylinders stroke(s) 2 or 4 stroke cycle Single or double acting
 Maximum approved BHP per engine at RPM of engine and RPM of propeller.
 Corresponding MIP (For D.A. engines give MIP top & bottom). Maximum cylinder pressure Machinery numeral
 Are the cylinders arranged in Vee or other special formation? 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? 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 Intake 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 Rod 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?
 Can the engine be directly reversed? If not, how is reversing obtained?

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 21/10/57 383T State barred speed range(s), if imposed for working propeller For spare propeller Is a governor fitted? 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 Minimum
 If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Approved
 Webs Tensile strength
 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)

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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

Can the main engine be used for purposes other than propulsion when declutched? If so, what?

STRAIGHT SHAFTING. Diameter of thrustshaft $\sqrt{240}$ in. Material S.M. STEEL Minimum approved tensile strength 55 Kg./mm²

Shaft separate or integral with crank or wheel shaft? INTEGRAL Diameter of intermediate shaft $9\frac{1}{2}$ in. Material S.M. STEEL
 Minimum approved tensile strength 28 TONS Diameter of screwshaft cone at large end $\sqrt{10\frac{3}{8}}$ in. 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 screwshaft liner at bearings Thickness between bearings Material of screwshaft STEEL Minimum approved tensile strength 28 TONS

Is an approved oil gland fitted? YES. If so, state type CEDARVALL Length of bearing next to and supporting propeller 3 ft. 6 3/8 in.
 Material of bearing WHITE METAL 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 $\sqrt{2667}$ in. Pitch 1 Built up or solid SOLID Total developed surface 24.15 sq. ft.
 No. of blades 4 Blade thickness at top of root fillet 3 3/4 in. Blade material BRONZE Moment of inertia of dry propeller 8333.3 lbs.

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 Moment of inertia

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine 1. Can they be declutched? No.
 No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) ONE - 23 CUB. FT./MIN.

ELECT. MOTOR. AFT PORT.
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2. - 1500 LIT. EW. AIR REC. HND. C. 57/650 AND 57/653

How are receivers first charged? HAND START DIESEL Maximum working pressure of starting air system 25 Kg./cm² Are the safety devices in accordance with the Rules? YES. Has the starting of the main engines been tested and found satisfactory? YES.

COOLERS. No. of main engine fresh water coolers NONE No. of main engine lubricating oil coolers ONE
 OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure TWO - AFT E.R. CASING.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) ONE BILGE, ONE COOLING WATER AND TWO LUB. OIL.

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	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
BALLAST. ELECT. FWD. PORT.	X	X	X			X				X		X	
BALLAST. ELECT. FWD. STBD.	X	X	X			X				X		X	
G.S. PUMP DIESEL. PORT.	X	X	X			X		X					X
LUB. OIL. ELECT. FWD. STBD.								X					X
O.F. TRANS. ELECT. AFT STBD.				X								X	

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 1 - 3" BORE P.S. No. 1 HOLD. 1 - 3" BORE P.S. No. 2. HOLD. 1 - 3" BORE P.S. No. 3 HOLD.

No. and size connected to main bilge line in main engine room 3 - 2 1/2" BORE. In tunnel.

Size and position of direct bilge suction in machinery spaces 1 - 3 1/2" BORE AFT. Size and position of emergency bilge suction in machinery spaces 1/4" BORE FWD.

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 ships carrying petroleum in bulk, cargo oil or oil classed for navigation in ice? (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)
PORT FWD.	4. SCSEA 'C'	NEWBURY DIESEL.	LONDON. D 56665.	DYNAMO - 25 KW. 220 VOLTS. AIR COMP. AND G.S. PUMP.
STBD. FWD.	4. SCSEA 'C'	NEWBURY DIESEL.	LONDON. D 57180.	GENERATOR. 50 KW. 220 V.
STBD. AFT.	4. SCSEA 'C'	NEWBURY DIESEL.	LONDON. D 57546.	GENERATOR. 50 KW. 220 V.

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 ONE - 50 KW.

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) DONKIN. HYDRAULIC E-RAM. No. 9778.

Have the Rule Requirements for fire extinguishing arrangements been complied with? YES. Brief description of arrangements 2 - 30 FT. HOSES. 3 - 10 FT³ BINS. 3 - 2 GALL. CHEM. EXT. 2 - 10 GALL. CHEM. EXT.

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 3:6:58. 6 HOURS.

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).

Lloyd's Register
 Builder 02697/2

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 HAS BEEN BUILT AND INSTALLED UNDER SPECIAL SURVEY IN ACCORDANCE WITH THE SOCIETIES RULES, APPROVED PLANS AND THE SECRETARY'S LETTERS. UPON COMPLETION OF THE INSTALLATION THE MACHINERY WAS EXAMINED WHILST SUBJECT TO FULL POWER CONDITIONS AT SEA AND FOUND SATISFACTORY.

THE MACHINERY, IN MY OPINION, IS ELIGIBLE TO BE CLASSED IN THE REGISTER BOOK \times L.M.C. 6/58 WITH THE NOTATION DIL ENGINE AND T.S. O.G. 6/58.

AMM
6/8/58

702. A. McIndry & Co. Ltd.
S. Macdonald

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 SEE GOTHENBURG REPORT No. 23751 25:11:57

CRANKSHAFT OR MOTOR SHAFT SEE GOTHENBURG REPORT No. 23751 25:11:57

PUMP SEE GOTHENBURG REPORT No. 23751 25:11:57

FLYWHEEL SHAFT INTEGRAL WITH CRANKSHAFT

THRUST SHAFT

GEARING

INTERMEDIATE SHAFTS LLOYD'S IPSWICH \checkmark No. 3871 G.T. 17:12:57 J.M. 7:10:57

SCREW AND TAIL SHAFTS LLOYD'S IPSWICH \checkmark No. 3830 G.T. 17:12:57 J.M. 24:9:57

PROPELLERS LLOYD'S IPSWICH \checkmark No. 11907 G.T. 10:4:58

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous one? YES. If so, state name of vessel "ETHEL EVERARD"

Date of approval of plans for construction 16:7:57 Straight shafting 16:7:57 Gearing NONE Clutch NONE

Separate oil fuel tanks 10-2-56 Pumping arrangements 12-12-56 Oil fuel arrangements 19-5-55

Cargo oil pumping arrangements _____ Air receivers 18:3:57 Donkey boilers _____

Dates of examination of principal parts:-

Fitting of stern tube 16:1:58 Fitting of propeller 8:5:58 Completion of sea connections 3:2:58 Alignment of crankshaft in main bearings 10:9:57

Engine checks & bolts 7:3:58 Alignment of gearing _____ Alignment of straight shafting 7:3:58 Testing of pumping arrangements 3:6:5

Oil fuel lines 3:6:58 Donkey boiler supports _____ Steering machinery 3:6:58 Windlass 3:6:58

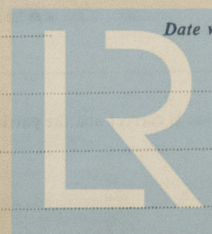
Date of Committee GLASGOW 12 AUG 1958

Special Survey Fee £61-5-0

Decision + L.M.C. ES. 13.9.58 Oil Engine

Expenses £50.00

Date when A/c rendered 12 AUG 1958



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