

## Rpt. 4b

Date of writing report 26/9/61.

Received London

Port

FLEETWOOD. 935.

No.

157695

Survey held at Preston.

No. of visits  
In shops 6  
On vessel

First date

17 - 3 - 61.

Last date

29 - 7 - 61.

## FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name ARAMOANA Gross tons

Owners New Zealand Government. Managers Wm. Denny & Bros. Port of Registry Yarmouth Year Month

Hull built at Dumbarton. By English Electric Co. Ltd. Yard No. I.H. 5569 When 1961 - 7

Main Engines made at Preston. By English Electric Co. Ltd. Eng. No. I.H. 5569 When 1961 - 7

Gearing made at Preston. By English Electric Co. Ltd. Br. No. I.H. 5569 When 1961 - 7

Donkey boilers made at Preston. By English Electric Co. Ltd. Br. No. I.H. 5569 When 1961 - 7

Machinery installed at Preston. By English Electric Co. Ltd. Br. No. I.H. 5569 When 1961 - 7

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 Diesel Electric.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. English Electric Diesel. Type 16 CSVM.

No. of cylinders per engine 16 Dia. of cylinders 17 1/2 stroke(s) 12 1/2 2 or 4 stroke cycle 4 Single or double acting Single.

Maximum approved BHP per engine 1745 at 750 RPM of engine and 250 RPM of propeller.

Corresponding MIP 145 (For D/A engines give MIP top & bottom) Maximum cylinder pressure 950 Machinery numeral 349

Are the cylinders arranged in Vee or other special formation? V Formation. If so, number of crankshafts per engine One.

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 engineNo. of supercharge air coolers per engine 4 Supercharge air pressure 10" Hg. Can engine operate without supercharger? Yes.TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel One. Inlet Two Exhaust Two Starting One Safety OneMaterial of cylinder covers Cast-iron. Material of piston crowns Alumin. Alloy. Is the engine equipped to operate on heavy fuel oil? No.Cooling medium for: Cylinders Fresh Water. Pistons None. Fuel valves Oil Fuel. Overall diameter of piston rod for double acting enginesIs the rod fitted with a sleeve? No. Is welded construction employed for: Bedplate? No. Frames? No. Entablature? No. Is the crankcase separated from theunderside of pistons? No. Is the engine of crosshead or trunk piston type? Trunk. Total internal volume of crankcase 98 cu.ft. No. and total area of explosion reliefdevices 4 - 112 sq.in. Are flame guards or traps fitted to relief devices? Yes. Is the crankcase readily accessible? Yes. If not, must the engine be removed foroverhaul of bearings, etc? No. Is the engine secured directly to the tank top or to a built-up seating? Built up seating. How is the engine started? Compressed air.Can the engine be directly reversed? No. If not, how is reversing obtained? Electric Motor Propulsion.Has the engine been tested working in the shop? Yes How long at full power? 6 hours.CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 5 - 5 - 61. State barred speed range(s), if imposedfor working propeller None. For spare propeller None. Is a governor fitted? Yes. Is a torsional vibration damper or detuner fitted to the shafting? No.Where positioned? None. Type None. No. of main bearings 9 Are main bearings of ball or rollertype? None. Distance between inner edges of bearings in way of crank(s) 13" Distance between centre lines of side cranks or eccentrics of opposed piston enginesCrankshaft type: Built, semi-built, solid. (State which) Solid.Diameter of journals 8 1/2" Diameter of crankpins 7 1/2" Breadth of webs at mid-throw 11 1/2" Axial thickness of webs 2 1/2"If shrunk, radial thickness around eyeholes None. Are dowel pins fitted? None. Crankshaft material Journals O.H. Steel. MinimumDiameter of flywheel 4' 10 1/2" Weight 2880 lb. Are balance weights fitted? No. Total weight No. Radius of gyrationDiameter of flywheel shaft 8 1/2" Material O.H. Steel. Minimum approved tensile strength 36 T.p.s.i.Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Integral with Crankshaft.Pins O.H. Steel. Approved 36 T.p.s.i.Webs O.H. Steel. Tensile strengthDiameter of flywheel 4' 10 1/2" Weight 2880 lb. Are balance weights fitted? 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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  
 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 6 KW per generator 1220 at 750 RPM AC or DC? DC Position \_\_\_\_\_  
 No. of propulsion motors \_\_\_\_\_ SHP per motor \_\_\_\_\_ at \_\_\_\_\_ RPM Position \_\_\_\_\_  
 How is power obtained for excitation of generators? Motor Driven Exciters. 110 V. 60 Hz. 5000 W.

## 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 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 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 \_\_\_\_\_ 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  
 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 None 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 One 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 \_\_\_\_\_

## MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 2 - Lube-oil Pumps (Oil Press. lubrication), 2 - F.W. Circ. Pumps (Suction)

LR-FAP-TB17-39

Fuel Injection Pumps



© 2018  
 Lloyd's Register  
 Foundation

INDEPENDENT  
 Name below essential  
 how driven. Give

BILGE SUCTIONS.

No. and size connected

In aux. engine room

Is the bilge or ballast

special requirements for

Position

Is electric current used

at sea

STEAM INSTALLATION

Position

Is a superheater fitted

Type

the steam range or direct

boilers

material?

units

STEERING GEAR.

Have the Rule Requirements

Has the spare gear been

power sea trials of main

The foregoing description







## 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 has been constructed under Special Survey in accordance with the Requirements of the Rules, Approved Plans and Secretary's letters.

The materials used in the construction have been tested under the supervision of the Surveyors to the Society, found satisfactory and workmanship good.

The machinery has been examined during full power, overload, fractional loads and governing test bed running and found satisfactory.

The machinery as now seen, is eligible in my opinion to be classed in the Register Book + LMC when efficiently installed and tested.

*J. A. M. G. L. G. L.*  
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 'B' Bank - S1957, S1976, S1778, S1975, S1974, S1976, S1996, S1974.

'A' Bank - S2160, S1974, S1979, S1970, S1974, S2160, S1998, S1970.

CRANKSHAFT OR ROTORSHAFT EEP. 4976. LLOYDS S.H.F. J9767. R.B. 2 - 5 - 61.

FLYWHEEL SHAFT -

THRUSTSHAFT -

GEARING -

INTERMEDIATE SHAFTS -

SCREW AND TUBE SHAFTS -

PROPELLERS -

OTHER IMPORTANT ITEMS Turbo-Chargers Type LB200. Nos. 204/2014, 2032, 2033, 2034/16 D.D.

Lube-oil Cooler - M.L1159. F.W. Circulating Pumps - Nos. F.68309, F.68314.

Turbo Charger inter Coolers - L.B.3605, L.B.3607, L.B.3608, L.B.3616.

Is the installation a duplicate of a previous case? No.

If so, state name of vessel -

Date of approval of plans for crankshaft 6 - 2 - 61.

Straight shafting 5 - 5 - 61.

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 crankshaft 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

LIVERPOOL 77NO. 10A1

CONSTR  
Special Survey Fee

£136-0-0

Decision

Referred for completion  
class

MRB

Expenses

£7-1-0

Date when A/c rendered

1 NOV 1961