

Rpt. 4b

8 OCT 1961

22 AUG 1962

Date of writing report 10/10/61.

Received London

Port FLEETWOOD. 944

No. 157700

Survey held at Preston.

No. of visits In shops 5 On vessel

First date 17-3-61.

Last date 6-10-61.

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name "ARAMOANA" Gross tons

Owners New Zealand Government. Managers - Port of Registry

Hull built at Dumbarton. By Wm. Denny & Bros. Year Month

Main Engines made at Preston. By English Electric Co. Ltd. Eng. No. I.H. 5574 When 1961-10.

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.

No. of main engines 6 ONE No. of propellers 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 10" stroke(s) 12" 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 DA 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 engine

engine 4 No. 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 One.

Material of cylinder covers Cast-iron. Material of piston crowns Aluminium 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 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. Total internal volume of crankcase 98 Cu.ft. No. and total area of explosion relief

devices 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 for

overhaul 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 8-5-61. State barred speed range(s), if imposed

for 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? Type No. of main bearings 9 Are main bearings of ball or roller

type? Distance between inner edges of bearings in way of crank(s) 13" 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 8 1/2" Diameter of crankpins Centre 7 1/2" Breadth of webs at mid-throw 11 1/8" Axial thickness of webs 2 7/8"

If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals O.H. Steel. Minimum 36 T.p.s.i.

Webs O.H. Steel. Tensile strength

Diameter of flywheel 4' 10 1/2" Weight 2880 lb. Are balance weights fitted? No. Total weight No. Radius of gyration

Diameter 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.

WITH YOUR FIRST ENTRY

C. S. M. 28/12

SDI-T

G.T. 22/1/62

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 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? Separate excitation. 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 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 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. lubricated).
Fuel injection pumps 2 - F.W. Circ. Pumps (Jacket circulation).

LR-FAF-TB17-44

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 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 \ddagger IMC, when efficiently installed and tested.

J. A. M. Sutcliffe
 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 'A' Bank - S2158, S2158, S2158, S2159, S2158, S2176, S2176, S2176. ✓

'B' Bank - S2175, S2176, S2160, S2159, S2158, S2158, S2158, S2158. ✓

CRANKSHAFT OR ROTORSHAFT EEP. 5003. ✓ LLOYDS SHF. J9786. Y.A. 22 - 6 - 61. ✓

FLYWHEEL SHAFT -

THRUSTSHAFT -

GEARING -

INTERMEDIATE SHAFTS -

SCREW AND TUBE SHAFTS -

PROPELLERS -

OTHER IMPORTANT ITEMS Turbo-chargers Type M.S.200 - Nos. 204/2017, 2018, 2054, 2061/16 DD. ✓

Lube-oil Cooler - M.L.1158. ✓ F.W. Circulating Pumps - F86233, F66232. ✓

Turbo Charger Inter Coolers - L.B. 3614, 3615, 3600, 3599. ✓

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 - 7 NOV 1961** Special Survey Fee **£136-0-0**

Decision *Deferred for completion class* ✓

Expenses **£7-1-0**

Date when A/c rendered **= 1 NOV 1961**



Rpt. 5c.

Date of writing Report

No. in Survey Reg. Book.

on the

Built at

Engines made at

Boiler made at

HS for Register B

WATER TUBES

Date of Approval

of Boilers One -

No. of Certificate

Half Economiser

No. and type of b

each boiler Two

are adjusted 11

the donkey boiler

Width and length

Thickness of

or flanged S.D.

for Class I vessel

Diameter of rive

long. joint: - Pla

Percentage stren

Thickness of plat

in each boiler

welded or flange

for Class I vessel

Diameter of rivet

Percentage stren

Percentage stren

Thickness of plat

Headers or Sect

COILS

Tube - Diamete

Joint to shell B.

exterior C.

firm D.

Plate of rivets B.

Crown or End Pl

SUPERHEATER

Thickness -

or flanged

for Class I vessel

Diameter of rivet

long. joint: - Pla

drum shell in wa

Radius or how st

Tested by hydro

can be shut off f

of valves

Spare Gear.

Dates of Survey

while building

Duration of work

Duration of boiler

Is this boiler a

GENERAL

with the

is consid

essential

Survey F

Travelling

Cha

Date

Committee's

Minute