

Rpt. 4b

Date of writing report 26th June 1957

Survey held at Southampton

Received London

In shops

No. of visits

On vessel 23

Port

Southampton

No. 24299

First date

17th Aug '56

Last date

22nd May 1957

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B.

Name

"RESPITE" EX "TID 36"

Gross tons 54.36

Owners

Gray Mackenzie & Co. Ltd.

Managers

Port of Registry London

Hull built at

Thorne

By

Richard Dunstan Ltd

Yard No.

Year Month

When 1943

Main Engines made at

Staines

By

Pettus Ltd

Eng. No.

5 RA 533

When 1947

Gearing made at

Slough

By

Modern Wheel Drive Ltd

Type M.W. 4 No 4244 A

Donkey boilers made at

By

Blr. Nos.

When

Machinery installed at

Southampton

By

Glebe Construction Works

When 1957

Particulars of restricted service of ship, if limited for classification

Tug for Harbour Service

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 1

No. of propellers 1

Brief description of propulsion system

Non-reversible D.E. driving through reduction/twin gear box.

MAIN RECIPROCATING ENGINES. Licence Name and Type No.

Pettus Type 55 5M

No. of cylinders per engine 5

Dia. of cylinders

8.5"

stroke(s)

13"

2 or 4 stroke cycle 2

Single or double acting single

Maximum approved BHP per engine

300

at

600

RPM of engine and

436

RPM of propeller.

Corresponding MIP 65 lb/sq. in.

(For D.A. engines give MIP top & bottom)

Maximum cylinder pressure

850 lb/sq. in.

Machinery numeral

60

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 upper pistons connected to crankshaft?

Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers?

Ports

No. and type of mechanically driven scavenge pumps or blowers per engine and how driven

Two rotary blowers driven by layshaft

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

2 1/2 lb/sq. in.

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

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

1

Inlet

Exhaust 2

Starting 3, 4, 5

Safety

Material of cylinder covers

Cast iron

Material of piston crowns

Is the engine equipped to operate on heavy fuel oil? No

Cooling medium for :—Cylinders

S.W.

Pistons

oil

Fuel valves

Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? No

Is welded construction employed for: Bedplate? Yes

Frames? Yes

Entablature? Yes

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

No. and total area of explosion relief devices

5 @ 9" dia.

Are flame guards or traps fitted to relief devices?

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? Built up seating

How is the engine started? Air

Can the engine be directly reversed? No

If not, how is reversing obtained?

Oil operated gear box

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

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? No

Where positioned?

Type

No. of main bearings 6

Are main bearings of ball or roller type? No

Distance between inner edges of bearings in way of crank(s)

10 3/4"

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

6"

Diameter of crankpins

Centre

5 3/4"

Breadth of webs at mid-throw

8 1/2"

Axial thickness of webs

2 3/4"

If shrunk, radial thickness around eyeholes

Are dowel pins fitted?

Crankshaft material Journals

Approved

Webs

Tensile strength

Diameter of flywheel

34"

Weight

Are balance weights fitted? Yes

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)

Integral with crankshaft

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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. *MWD oil operated*
 Can the main engine be used for purposes other than propulsion when declutched? *No* 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 *5 7/8" 5 1/2"* Material *Steel*
 Minimum approved tensile strength Diameter of screwshaft cone at large end *6"* 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 screw/tube shaft liner at bearings Thickness between bearings Material of screw/tube shaft Minimum approved tensile strength
 Is an approved oil gland fitted? *Yes* If so, state type *Newark* Length of bearing next to and supporting propeller *24"*
 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 *56"* Pitch Built up or solid *Solid* Total developed surface
 No. of blades *4* Blade thickness at top of root fillet Blade material *cast iron* Moment of inertia of dry propeller
 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 13.5 cu ft. per min driven by brookley BWB 1/10 14 HP D.E. Land starting*
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) *Two @ 5 cu ft. Forward end of engine room. Port & Starboard. Leeds Certificate C 29174 & C 29176*
 How are receivers first charged? *By aux. compressors* Maximum working pressure of starting air system *350 lbs/p* 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 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 *one at forward end of E.R.*

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) *Two lub. oil: one salt water use: one bilge. (2800 gals/hr)*

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	Lub. Oil	Piston Cooling	
<i>X</i>	<i>X</i>	<i>X</i>			<i>X</i>				<i>X</i>			<i>X</i>			<i>X</i>

one centrifugal pump driven by brookley aux engine. Capacity 10 tons/hr

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room *1 @ 2" to forward compartment*
1 - 2 1/2" after

No. and size connected to main bilge line in main engine room *1 @ 2"*
 In aux. engine room Size and position of direct bilge suction in machinery spaces *one 2" aft end of E.R.*
 Size and position of emergency bilge suction in machinery spaces *one 2" aft end of E.R.*
 Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? *No*
 special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (strike out words not applicable).
 Do the piping arrangements comply with the Rules *including*

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
<i>E.R. aft end.</i>	<i>4 SCOA</i>	<i>brookley.</i>		<i>one centrifugal pump 10 tons/hr. one air compressor 13.5 cu ft/min one electric generator 7.5 K.W. 220V. D.C.</i>

Is electric current used for essential services at sea? *No*
 If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea
 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) *Land*
 Have the Rule Requirements for fire extinguishing arrangements been complied with? *Yes* Brief description of arrangements *Two 2 gallon, one 1 quart foam extinguishers: one 30' length 2" canvas hose.*
 Has the spare gear required by the Rules been supplied? *No* 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 *13.5.57 5 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).

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.

A new main engine, built 1947 under B.C. Survey has been securely fitted on board in accordance with Rule requirements.

Explosion relief devices fitted on crankcase - 5 @ 9" dia.

The engine and gear box opened out and examined in their entirety. Crankshaft dimensions verified.

crankpins 5 3/4" dia. Journals 6" dia.

crankwebs :- breadth 8 1/2", thickness 2 3/4"

One new length of intermediate shaft fitted: forging report herewith. Auxiliary engine driving generator, compressor and G.S. pump: all opened out and examined.

Two new starting air receivers fitted: certificates herewith.

Pumping arrangements modified in accordance with approved plan.

This machinery is eligible, in my opinion, to have records *LMC 5, 57 NE made 1947 fitted 1957 and TSOG: subject to the torsional vibration characteristics of the dynamic system being found in order and to spare gear being supplied.

H. B. Rogers.

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

CRANKSHAFT OR ROTORSHAFT

BC ^M/_{WB}

FLYWHEEL SHAFT

THRUSTSHAFT

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

Straight shafting

Gearing

Clutch

Separate oil fuel tanks

Pumping arrangements

10.1.57

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 crank shaft 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

FRIDAY - 8 NOV 1957

Special Survey Fee

£25 - 0 - 0

Decision

See Rpt. 1.

Expenses

£4 - 18 - 8

Date when A/c rendered

26/6/57.