

Rpt. 4b

Date of writing report 27/3/62.

Received London

Port HULL.

12 JUL 1962  
No. 67805

Survey held at Thorne & Hull.

No. of visits In shops  
On vessel 10.

First date 28. 11. 61.

Last date 27. 4. 62.

## FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name "GENERAL VII"

Gross tons

Owners General Lighterage Co. Ltd.

Managers

Port of Registry London.

Hull built at Thorne.

By Richard Dunston, Ltd.

Yard No. T.1068

Year Month  
When 1962

Main Engines made at Ashton-under-Lyne.

By National Gas & O.E. Co. Ltd.

Eng. No. 78281

When 1962

Gearing made at Slough.

By Modern Wheel Drive, Ltd.

Donkey boilers made at

By

Blr. Nos.

When

Machinery installed at Thorne.

By Richard Dunston, Ltd.

When 1962

Particulars of restricted service of ship, if limited for classification

\*1 Tug "For River Thames Service".

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?

No.

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 Oil Engine and Reverse reduction gearbox.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. National Gas F.M.6.

No. of cylinders per engine 6

Dia. of cylinders

12"

stroke(s)

15"

2 or 4 stroke cycle

4

Single or double acting S.A.

Maximum approved BHP per engine

660

at

600

RPM of engine and

250

RPM of propeller.

Corresponding MIP

(For DA 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

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

Inlet

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

Fuel 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?

Built-up seating.

How is the engine started? Compressed air.

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

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

Pins

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

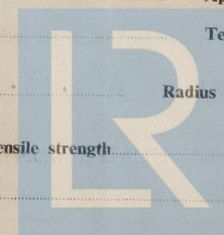
Radius of gyration

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? No. If so, what? .....  
 Incorporated in gearbox.

## STRAIGHT SHAFTING. Diameter of thrustshaft ..... Material ..... Minimum approved tensile strength ..... Shaft separate or integral with crank or wheel shaft? ..... Diameter of intermediate shaft ..... Material Forged M.S. Minimum approved tensile strength ..... Diameter of screwshaft cone at large end ..... 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 Forged M.S. Minimum approved tensile strength 28 tons. Is an approved oil gland fitted? Yes. If so, state type Newark (GRASE) Length of bearing next to and supporting propeller 2'-2 1/2" Material of bearing Cast iron. In multiple screw vessels is the liner between stern tube and A bracket continuous? No. If not, is the exposed length of shafting between liners readily visible in dry dock? No.

## PROPELLER. Diameter of propeller 6'-6" Pitch 4'-5" Built up or solid Solid Total developed surface 18.25 sq.ft. No. of blades 4 Blade thickness at top of root fillet 4" Blade material C.I. Moment of inertia of dry propeller 4250 lb/ft.<sup>2</sup> 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 None. Moment of inertia .....

## AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine One. Can they be declutched? Yes, Belt driven (Sou.D. (300.18804)) No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) One 17.5 cu.ft./min. No. 25986-1 driven by Diesel Aux.Eng. Sou.D.18566.

## No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Two 11 1/2 Cu.ft. each No. 11/9219 and No. 11/9218 Port side aft. Lds. Cert. No. C.41480 & C.41479.

How are receivers first charged Hand start diesel Aux.Eng. Maximum working pressure of starting air system 350 lb/sq.in. 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 One. No. of main engine lubricating oil coolers One and One gear oil.

## OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure One Daily service Port side casing. Bunker tanks:- 2 Aft. P. & S., 2 For'd. P. & S.

## MAIN ENGINE DRIVEN PUMPS (No. and Purpose) One - S.W. Circ.pump; One - F.W.Circ.pump. 2 Lub.oil; One pressure and one scavenge.

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X													
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Water Cooling	Sea	Feed Tanks	Lub. Oil	Salvage	Emergency	M.E. Fresh Water Cooling	M.E. Fresh Water Cooling	Oil Fuel Tanks	Fire Main
General Service clutch drive Aux.Eng. 30 TPH.	X	X	X		X	X			X					
Bilge pump Belt (p.s.) driven off M.E. 15TPH.	X	X	X			X			X	X	X		X	X

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 1 - 2" fore peak; 1 - 2" fore cabin; 1 - 2" after peak.  
 1 - 2" after cabin.

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

In aux. engine room ..... Size and position of direct bilge suction in machinery spaces 1 - 2"

Size and position of emergency bilge suction in machinery spaces 1 - 2 1/2"

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? 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)
P.S. Amidships.	No. 10JL9957	Russell Newbery.	Ldn. Rpt. 10/4c. No. D. 83777.	G.S. Pump. Air compressor. Standby Steering gear pump. 1 K.W. Generator.

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? Yes, 1 K.W. Belt drive S.S.

## STEAM INSTALLATION. No. of donkey boilers burning oil fuel None. 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 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) One Combined hand and Electric hydraulic type H.S.12 Frydenbo slip No. 570 FSMV 23/11/61 L.R. Bergen Cert. No. 10618.

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 2-2 Gall foam extinguishers, 1 hydrant hose and jet spray nozzle, sand bin and scoop. O.F. outlet valves extended spindles.

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 27/4/62 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).

Builder PER PRO. RICHARD DUNSTON, LTD.

012705-012710-002024



## 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 has been efficiently installed in this vessel in accordance with the Rules, Approved plans and the Secretary's letters, tried under working conditions and found satisfactory.

The materials and workmanship are good.

The Machinery is eligible in my opinion to be classed in the Register Book with the record of ~~LMC~~ 4,62 and Notation TS Oil Eng. 4 S.C.S.A. 6 cyl. 12" x 15" stroke with S.R. reverse gearbox.

During sea trials there was no evidence of gear hammer or rough running throughout the working range 220 R.P.M. - 600 R.P.M. (Engine).

*Vincent*

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 Please see Mch.Rpt.4b No. F.E. 6 4 1.

CRANKSHAFT OR ROTORSHAFT -do- -do- -do-

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING Handmarch M.W.D.type M.2.W.R. size 4 No.12718. Lon.Rpt.10 M.W.D.No.2425. ✓

Long.Lloyd's Liv.4238/2 29/9/61 J.F. 13/12/61.  
INTERMEDIATE SHAFTS Short.Lloyd's Liv.4238/3 29/9/61 J.F. 13/12/61. } Liv.Cert.C.8574.  
SCREW AND TUBE SHAFTS Lloyd's Liv. 4238/1 29/9/61 J.F. 13/12/61.

PROPELLERS 4 Bladed C.I. Andrew Strang Lloyd's GHM. 26/10/61 Gls.C.74025.

OTHER IMPORTANT ITEMS C.I. sterntube Lloyd's Liv.13/12/61 J.F.

No. If so, state name of vessel

Is the installation a duplicate of a previous case? -

Date of approval of plans for crankshaft - Straight shafting 6/11/61 Gearing - Clutch -

Separate oil fuel tanks 8/3/62 Pumping arrangements 2/10/61. Oil fuel arrangements 21/8/61.

Cargo oil pumping arrangements - Air receivers - Donkey boilers -

Dates of examination of principal parts:-

Fitting of stern tube 19/1/62 Fitting of propeller 13/12/61 Completion of sea connections 19/1/62 Alignment of crank shaft in main bearings -

Engine chocks & bolts 13/3/62 Alignment of gearing 13/3/62. Alignment of straight shafting 23/2/62 Testing of pumping arrangements 28/3/6

Oil fuel lines 28/3/62 Donkey boiler supports - Steering machinery 27/4/62 Windlass 27/4/62

Date of Committee Special Survey Fee £35.0s.0d.

Decision *As + LMCES*  
*TS* } 4.62

Expenses £5.0s.0d.

Date when A/c rendered 8 JUN 1962



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