

Rpt. 4b

Date of writing report 23rd May, 1957.

Received London 28 MAY 1957

Port Manchester No. 17848.

Survey held at MANCHESTER.

In shops 8.

27.2.57.

Last date 10.5.57.

No. of visits On vessel

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name **S.S. "d'VORA" (Re-engining).** Gross tons

Owners **Mercury Fisheries Ltd.** Managers **Cook, Welton & Gemmell.** Port of Registry Year Month

Hull built at **Openshaw.** By **Crossley Brothers Ltd.** Eng. No. **147915.** When **1957.**

Main Engines made at **Openshaw.** By **Crossley Brothers Ltd.** Contract No. **11810.**

Gearing made at By Blr. Nos. When

Donkey boilers made at By When

Machinery installed at By

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 **(a) Direct Drive to Propeller at 430 R.P.M. (b) Thro' 4:1 Gears " at 600 R.P.M.**

MAIN RECIPROCATING ENGINES. Licence Name and Type No. **HRN6/60 Heavy Oil.**

No. of cylinders per engine **6.** Dia. of cylinders **10 1/2"** stroke(s) **13 1/2"** 2 or 4 stroke cycle **Two.** Single or double acting **Single.**

Maximum approved BHP per engine **800.** at **600.** RPM of engine and **150.** RPM of propeller.

Corresponding MIP **92 psi.** (For DA engines give MIP top & bottom) Maximum cylinder pressure **950 psi.** Machinery numeral **160.**

Are the cylinders arranged in Vee or other special formation? **In Line.** 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 **One, Two Tier Double Acting Scavenge, Driven from Crankshaft.**

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 **None.** Scavenge air pressure at full power **2 p.s.i.** Are scavenge manifold explosion relief valves fitted? **Yes.**

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 **One.** Inlet **-** Exhaust **-** Starting **One.** Safety **One.**

Material of cylinder covers **C.I.** Material of piston crowns **C.I.** Is the engine equipped to operate on heavy fuel oil? **Yes.**

Cooling medium for :-Cylinders **Water.** Pistons **Lub.Oil.** Fuel valves **-** 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 **62 Cu.ft.** No. and total area of explosion relief devices **3 - 41.00 sq."** 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? **-** How is the engine started? **Compressed Air.**

Can the engine be directly reversed? **Yes.** If not, how is reversing obtained? **-**

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 **-** State barred speed range(s), if imposed **No at 430 RPM Yes at 600 RPM.**

for working propeller **-** For spare propeller **-** Is a governor fitted? **Yes.** Is a torsional vibration damper or detuner fitted to the shafting? **-**

Where positioned? **Ford. End.** Type **To be decided when gear box fitted.** No. of main bearings **7.** Are main bearings of ball or roller type? **-**

Distance between inner edges of bearings in way of crank(s) **14.11/16"** Distance between centre lines of side cranks or eccentrics of opposed piston engines **-**

Crankshaft type: Built, semi-built, solid. (State which) **Solid.**

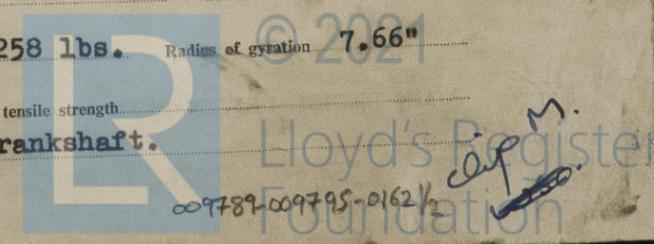
Diameter of journals **7 1/2"** Diameter of crankpins Centre **7 1/2"** Breadth of webs at mid-throw **9 1/2"** Axial thickness of webs **3.23/32"**

If shrunk, radial thickness around eyeholes **-** Are dowel pins fitted? **-** Crankshaft material Pins **O.H. Steel.** Minimum **35/45 T.S.I.** Journals **O.H. Steel.** Approved **35/45 T.S.I.** Webs **-** Tensile strength **-**

Diameter of flywheel **35 1/2"** Weight **806 lbs.** Are balance weights fitted? **Yes.** Total weight **258 lbs.** Radius of gyration **7.66"**

Diameter of flywheel shaft **-** Material **-** Minimum approved tensile strength **-**

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) **Flywheel bolted to Crankshaft.**



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 heavy oil engine has been built under special survey of tested materials and in accordance with the Rules, approved plans and Secretary's letters. The material, as far as can be seen, is sound and free from defects. The workmanship is good. The engine, coupled to a dynamometer, was tested at the Engine Builder's Works under the following conditions of loading - 6 hours 100% engine rating, 1 hour 10% overload, governing, manoeuvring.

N.B. Until such time as the gear box becomes available the engine will be run at 430 R.P.M., with direct drive to propeller. At 430 R.P.M. the engine will be run without torsion damper. When gear box is fitted, engine will be run at 600 R.P.M.

Torsional vibration calculations have not yet been submitted.

Attached hereto:- Crankshaft Cert. F.67564.

Thrustshaft Cert.F.8775.

Conn. Rod Certs. C.24912.

L.V. Hansley

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 S.83, 84. L.V.H. 8.4.57. B'ham.

CRANKSHAFT OR ROTORSHAFT 3936 L.V.H. 56 RF5 Shf.

FLYWHEEL SHAFT

THRUSTSHAFT 4837 LWH 11.5.54. Mch.

GEARING

INTERMEDIATE SHAFTS

SCREW AND TUBE SHAFTS

PROPELLERS

OTHER IMPORTANT ITEMS

Is the installation a duplicate of a previous case? If so, state name of vessel

Date of approval of plans for crankshaft 19.3.57. Straight shafting 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 4.5.57.

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 Special Survey Fee £52 :0 :0.

Decision

W

Expenses £2 :0 :0.

Date when A/c rendered 27.5.57



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