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Workmanship as fully as possible of writing report 16.12.59. Received London Port MANCHESTER. No. 100  
Place held at MANCHESTER. No. of visits In shops 7.4.59. First date 9.10.59 Last date  
On vessel 18

516

FEB 1960

# FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

Name Twin Screw Ferry. Gross tons

Owners Birkenhead Ferries Corpn. Managers

Port of Registry Dartmouth. By Philip & Son Ltd. Year Month 1959

Engines made at Manchester. By Crossley Brothers Ltd. Contract Nos. 11960-59. Eng. No. 148446, 148315. When 1959

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 intended to carry petroleum in bulk?

Is refrigerating machinery fitted? If so, is it for cargo purposes? Type of refrigerant

Is the refrigerated cargo installation intended to be classed?

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 port need not be repeated below, but the port and report number should be stated.

No. of main engines Two No. of propellers Two Brief description of propulsion system Direct drive to propeller.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. HRN8/35 Heavy Oil Engines.

No. of cylinders per engine 8 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 680 at 350 RPM of engine and 350 RPM of propeller.

Working MIP 97 PSI (For DA engines give MIP top & bottom) Maximum cylinder pressure 950 PSI Machinery numeral 136 x 2 = 272

Are the cylinders arranged in Vee or other special formation? In Line If so, number of crankshafts per engine -

DO 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 D.A. Three Tier Scavenge Pump, driven from Engine Crankshaft.

No. of exhaust gas driven scavenge blowers per engine None Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? -

Is a stand-by or emergency pump or blower fitted, state how driven - No. of scavenge air coolers None Scavenge air pressure at full load 3 PSI Are scavenge manifold explosion relief valves fitted? Yes

TWO STROKE ENGINES. Is the engine supercharged? - Are the undersides of the pistons arranged as supercharge pumps? - No. of exhaust gas driven blowers per 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 Cast Iron Material of piston crowns Cast Iron Is the engine equipped to operate on heavy fuel oil? Yes

Lubricating medium for:—Cylinders Fresh 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 78 cu.ft. No. and total area of explosion relief

devices 4-54.8 cu.ft. 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? - Is the engine secured directly to the tank top or to a built-up seating? - 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. base 374 K

DATE OF APPROVAL OF TORSIONAL VIBRATION CHARACTERISTICS OF THE PROPPELLING MACHINERY SYSTEM 2.9.58. State barred speed range(s), if imposed

For spare propeller - Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No

Where positioned? - Type - No. of main bearings Nine Are main bearings of ball or roller

type? Plain Distance between inner edges of bearings in way of crank(s) 14 7/8" 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 7 1/4" Breadth of webs at mid-throw 9 1/4" Axial thickness of webs 3.23/32"

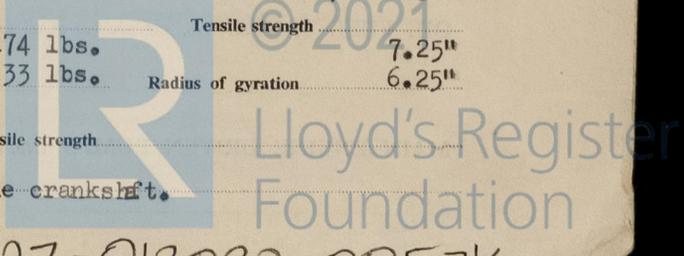
Minimum Pins - Crankshaft material Journals OH Steel Approved 35/45 t.p.s.i.

Webbs 174 lbs. Tensile strength 7.25"

Diameter of flywheel 37 1/2" Weight 950 lbs. Are balance weights fitted? Yes Total weight 33 lbs. Radius of gyration 6.25"

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

Is the flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Flywheel bolted to engine crankshaft.



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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.

These heavy oil propulsion Engines have been constructed under special survey of tested materials and in accordance with the Rules, approved plans and Secretary's letters.

The material is sound and, as far as can be seen, free from defects. The workmanship is good.

Each engine, coupled to a dynamometer, was tested at the Engine Builders' works under the following conditions of loading - 6 hours 100% engine rating, 1 hour 10% overload, governing, manoeuvring, 1/2 hour astern.

Attached hereto - Shaft. Certs. D.67410, F.73027, D.65154, F.73399

Con. Rod Certs, 44579, 45630, 44878, 44877.

Thrust Shaft Certs. F.7045. ~~F.6518~~

*L. V. Hauser*

(L.V. HAUSER),  
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 D.70, 69, 74, E.13, Z.15, L.12, L.13, D.35, 31, 30. BHM.

CRANKSHAFT OR ROTORSHAFT 19469, 19473. BHM.

FLYWHEEL SHAFT 6440, 6524

THRUSTSHAFT 6440 6145 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 14.3.58.

Straight shafting

Gearing

Clutch

Separate oil fuel tanks

Pumping arrangements

Oil fuel arrangements

Cargo oil pumping arrangements

Air receivers

A.20082/3.

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 11.9.59.

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

TUESDAY 29 MAR 1960

Special Survey Fee

£115. 0. Od.

Decision

*See App. 1.*

Expenses

£3. 5. Od.

Date when A/c rendered

8-19-59



Lloyd's Register  
Foundation