

REPORT ON OIL ENGINE MACHINERY.

Mbb. Rpt. No. 19748.

No. 109240

Date of writing Report

19

When handed in at Local Office

15 MAR 1952

Received at London Office

19 MAR 1952

No. in Reg. Book.

Survey held at NEWCASTLE ON TYNE

Port of NEWCASTLE-ON-TYNE

Date, First Survey 3rd August 1949

Last Survey

22 February 1952

Single
on the Twin
Triple
Quadruple

Screw vessel.

M.V. "LUCERNA"

Number of Visits 39

Built at SOUTHBANK ON TEES

By whom built

SMITHS DOCK CO. LD.

Tons

Gross

Net

Engines made at NEWCASTLE ON TYNE

By whom made

RAW HAWTHORN LESLIE & CO. LD.

Yard No. 1215

When built

Donkey Boilers made at

By whom made

Engine No. 4084

When made 1951

Brake Horse Power

5500

MAX 2

SERVICE Owners

Boiler No.

When made

M.N. Power as per Rule

1126

(NEW MN 1100)

Port belonging to

Trade for which vessel is intended

OPEN SEA SERVICE

Is Electric Light fitted

OIL ENGINES, &c. —Type of Engines HAWTHORN-DOXFORD OPPOSED PISTON

2 or 4 stroke cycle 2

Single or double acting SINGLE

Maximum pressure in cylinders

640 LBS/□"

Diameter of cylinders

670 mm

Length of stroke

2320 mm

No. of cylinders

5

No. of cranks

5 THREE-THROW

Mean Indicated Pressure

89 LBS/□"

Ahead Firing Order in Cylinders

1 3 5 4 2

from inner edge to inner edge

2020 mm

Is there a bearing between each crank

Span of bearings, adjacent to the crank, measured BETWEEN EA.

Flywheel dia.

98.384"

Weight

1.12 TNS

Moment of inertia of flywheel

TNS FT/SEC²(lbs. in² or Kg. cm²)

0.497

Revolutions per minute

112

Crank Shaft

Solid forged

Semi built

All built

dia. of journals

as per Rule

APPROVED

as fitted

520 mm

Crank pin dia.

520 mm

Crank webs

Mid. length breadth

730 mm

Mid. length thickness

290 mm

Thrust Shaft, diameter at collars

as fitted

520 mm

Flywheel Shaft, diameter

as per Rule

as fitted

Intermediate Shafts, diameter

as per Rule

as fitted

17 1/2"

Thrust Shaft, diameter at collars

as per Rule

as fitted

520 mm

Tube Shaft, diameter

as per Rule

as fitted

Screw Shaft, diameter

as per Rule

as fitted

17 1/2"

Is the

tube

screw

shaft fitted with a continuous liner

YES

Bronze Liners, thickness in way of bushes

as per Rule

as fitted

13/16"

Thickness between bushes

as per Rule

as fitted

45/64"

Is the after end of the liner made watertight in the

IN ONE LENGTH

propeller boss

YES

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

If two liners are fitted, is the shaft lapped or protected between the liners

Is an approved Oil Gland or other appliance fitted at the after end of tube shaft

If so, state type

Propeller, dia. 18' 0"

Pitch 12.97 FT TO

No. of blades

4

Material

M. BRONZE

whether moveable

NO

Total developed surface

115 sq. feet

Moment of inertia of propeller

TNS. FT. / SEC²(lbs. in² or Kg. cm²)

6.44

Method of reversing Engines

COMPRESS² AIR

Is a governor or other arrangement fitted to prevent racing of the engine when declutched

YES

Kind of damper, if fitted

DOXFORD-BIBBY DETUNER

(SEE OVERLEAF)

lubrication FORCED

Thickness of cylinder liners

25 mm

Are the cylinders fitted with safety valves

YES

Are the exhaust pipes and silencers water cooled

YES

Means of

or lagged with non-conducting material

LAGGED

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

Cooling Water Pumps, No.

Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Bilge Pumps worked from the Main Engines, No.

Diameter

Stroke

Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line

No. and size

How driven

Is the cooling water led to the bilges

If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements

Ballast Pumps, No. and size

Power Driven Lubricating Oil Pumps, including spare pump, No. and size

Are two independent means arranged for circulating water through the Oil Cooler

Suctions, connected to both main bilge pumps and auxiliary

In pump room

Independent Power Pump Direct Suctions to the engine room bilges, No. and size

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes

Are the bilge suction in the machinery spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

Are all Sea Connections fitted direct on the skin of the Ship

Are they fitted with valves or cocks

Are they fixed

Are they each fitted with a discharge valve always accessible on the plating of the vessel

Are the blow off cocks fitted with a spigot and brass covering plate

How are they protected

Have they been tested as per Rule

Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times

Is the shaft tunnel watertight

Is it fitted with a watertight door

worked from

a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

ENGINE

Air Compressors, No.

NONE

No. of stages

diameters

stroke

driven by

Auxiliary Air Compressors, No.

No. of stages

diameters

stroke

driven by

All Auxiliary Air Compressors, No.

No. of stages

diameters

stroke

driven by

Is a report sent herewith

012827-012835-0301

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AIR RECEIVERS:—Have they been made under survey YES. State No. of report or certificate -
Is each receiver, which can be isolated, fitted with a safety valve as per Rule YES.
Can the internal surfaces of the receivers be examined and cleaned YES. Is a drain fitted at the lowest part of each receiver YES.
Injection Air Receivers, No. NONE Cubic capacity of each - Internal diameter - thickness -
Seamless, welded or riveted longitudinal joint - Material - Range of tensile strength - Working pressure -
Starting Air Receivers, No. TWO Total cubic capacity 300 CU. FT. Internal diameter 4'-1 3/8" thickness 1 5/16"
Seamless, welded or riveted longitudinal joint E. WELDED Material M. S. Range of tensile strength SHELL: 28/32 TNS/IN Working pressure Actual: 600 LBS
IS A DONKEY BOILER FITTED - If so, is a report now forwarded -
Is the donkey boiler intended to be used for domestic purposes only -
PLANS. Are approved plans forwarded herewith for shafting YES. Receivers As per Eng. No 4059. Separate fuel tanks -
Donkey boilers - General pumping arrangements - Pumping arrangements in machinery space -
Oil fuel burning arrangements -
Have Torsional Vibration characteristics been approved YES. Date of approval 26. 7. 51.
SPARE GEAR. (Frequency calc. sheet attached) YES.
Has the spare gear required by the Rules been supplied YES.
State the principal additional spare gear supplied AS PER ATTACHED LISTS.

DOXFORD-BIBBY DETUNER PARTICULARS. FIXED MEMBER $WK^2 = 4.5 \text{ TNS. FT.}^2$
FLOATING " " = 11.0 TNS. FT.^2

The foregoing is a correct description and the particulars of the installation as fitted are as approved for the
Manufacturer. Torsional Frequency Calculations.

Dates of Survey while building
During progress of work in shops - (1949) AUG. 3 DEC. 6 (1951) MAR. 6 7 22 28 APR. 3 6 MAY. 2 SEPT. 3 11 25 27 OCT. 3 5 9 11 15 17 19 23 25 29 31 Nov. 2 6 12 14 16
During erection on board vessel - 22 26 DEC. 6 12 14 18 (1952) JAN. 14 16 FEB. 29
Total No. of visits NWC. 39.
Dates of examination of principal parts—Cylinders 6.3.51 ETC. Covers - Pistons 11.10.51 ETC. Rods 11.10.51 ETC. Connecting rods 15.10.51
Crank shaft 3.10.51. Flywheel shaft - Thrust shaft 3.10.51. Intermediate shafts 10.1.52 ETC. Tube shaft -
Screw shaft 12.1.52. Propeller - Stern tube 29.2.52 Engine seatings - Engine holding down bolts -
Completion of fitting sea connections - Completion of pumping arrangements - Engines tried under working conditions 26.11.51.
Crank shaft, material F. O. H. I. S. Identification mark EB. 12.9.51 Flywheel shaft, material F. O. H. I. S. Identification mark EB. 10.10.51
Thrust shaft, material F. O. H. I. S. Identification mark IN CRANKSHAFT Intermediate shafts, material F. O. H. I. S. Identification mark EB. 16.10.51
Tube shaft, material - Identification mark - Screw shaft, material F. O. H. I. S. Identification mark EB. 25.10.51
Identification marks on air receivers " LLOYDS TEST. TP. 950 LBS. WP. 600 LBS. AB. 16.11.51.

Welded receivers, state Makers' Name R & W. HAWTHORN LESLIE & CO. LD. NEWCASTLE.
Is the flash point of the oil to be used over 150°F -
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with -
Description of fire extinguishing apparatus fitted -
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo - If so, have the requirements of the Rules been complied with -
If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with -
Is this machinery duplicate of a previous case No. If so, state name of vessel -

General Remarks (State quality of workmanship, opinions as to class, Speed restrictions, &c.)
The Engine etc. referred to herein has been constructed under Special Survey in accordance with the approved plans, Secretary's letters, and Rule Requirements
The material & workmanship are good.
The engine has been despatched to Southbank on Tees for installation in Messrs Smiths Dock to be Ship No. 1215.

The amount of Entry Fee £ 191 15 0
Special £ 20 10 0
Donkey Boiler Fee £ 8 0 0
Travelling Expenses (if any) £
When applied for 118 MAR 1952
When received 19

Committee's Minute Sun F.E. mch. 1st mch. 1952
Assigned Sun F.E. mch. 1st mch. 1952

Engineer Surveyor to Lloyd's Register of Shipping
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