

REPORT ON OIL ENGINE MACHINERY.

No. 101017
4-FEB-1943

Received at London Office

Date of writing Report 19... When handed in at Local Office 26.1.43 Port of **NEWCASTLE-ON-TYNE**

No. in Survey held at **Newcastle** Date, First Survey 9 Jan 1942 Last Survey 11 Jan 1943
Reg. Book. " **NATICINA** " Number of Visits 84

on the ^{Single} ~~Double~~ ~~Triple~~ ~~Quadruple~~ Screw vessel **"NATICINA"** Tons ^{Gross} 8179. _{Net} 4767.

Built at **Hebburn** By whom built **R.W. Hawthorn, Leslie & Co. Ltd** Yard No. 652 When built 1943-1

Engines made at **Newcastle (St Peter's)** By whom made **ditto.** Engine No. 3985 When made 1943-1

Donkey Boilers made at **ditto (ditto)** By whom made **ditto.** Boiler No. 3985 When made 1943-1

Brake Horse Power 3500 Owners **Anglo-Saxon Petroleum Co. Ltd** Port belonging to

Nom. Horse Power as per Rule 502 Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**

Trade for which vessel is intended **Open sea - carrying Petroleum in bulk.**

OIL ENGINES, &c.—Type of Engines **Hawthorn-Workshop Supercharged** 4 stroke cycle **H.** Single or double acting **Single**

Maximum pressure in cylinders **700 lbs/sq in** Diameter of cylinders **650 m.m.** Length of stroke **1400 m.m.** No. of cylinders **8** No. of cranks **8**

Mean Indicated Pressure **135** Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **844 m.m.** Is there a bearing between each crank **Yes**

Revolutions per minute **120** Flywheel dia. **2260 m.m.** Weight **6000 kg.** Means of ignition **Heat of Compression** Kind of fuel used **Heavy oil fuel**

Crank Shaft, dia. of journals ^{as per Rule} **448 m.m.** Crank pin dia. **460 m.m.** Crank Webs Mid. length breadth **870 m.m.** Thickness parallel to axis **267 & 290 m.m.**
^{as fitted} **460** Mid. length thickness **267** Thickness around eye-hole **204 m.m.**

Flywheel Shaft, diameter ^{as per Rule} **448** Intermediate Shafts, diameter ^{as per Rule} **325 m.m.** Thrust Shaft, diameter at collars ^{as per Rule} **344 m.m.**
^{as fitted} **460** ^{as fitted} **470 m.m. at bearings** ^{as fitted} **460**

Tube Shaft, diameter ^{as per Rule} **None** Screw Shaft, diameter ^{as per Rule} **358 & 375 bet bearings** Is the ^{tube} shaft fitted with a continuous liner **Yes**
^{as fitted} **None** ^{as fitted} **400**

Bronze Liners, thickness in way of bushes ^{as per Rule} **18.55 m/m** Thickness between bushes ^{as per Rule} **13.9 m/m** Is the after end of the liner made watertight in the propeller boss **Yes**
^{as fitted} **20 m/m** ^{as fitted} **15 m/m** If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner **In one length.**

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 **a tight fit.**

If two liners are fitted, is the shaft lapped or protected between the liners **Yes** Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft **No** Length of Bearing in Stern Bush next to and supporting propeller **1585 m/m**

Propeller, dia. **15'-0"** Pitch **12'-0"** No. of blades **4** Material **M. Bry.** whether Movable **No** Total Developed Surface **72** sq. feet

Method of reversing Engines **Aut. Servo-motor** Is a governor or other arrangement fitted to prevent racing of the engine **when decelerated Yes** Means of lubrication **Forced**

Thickness of cylinder liners **55 m/m** Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and silencers water cooled 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 **LED TO TOP OF FUNNEL**

Cooling Water Pumps, No. **2** **FOR F.W. COOLING - 2 ROTARY BY M. ENG. 2 STAND-BY, STEAM DRIVEN.** Is the sea suction provided with an efficient strainer which can be cleared within the vessel **YES. ON S.W. SYSTEM TO COOLERS.**

Bilge Pumps worked from the Main Engines, No. **2** Diameter **ROTARY** Stroke **Can one be overhauled while the other is at work YES.**

Pumps connected to the Main Bilge Line ^{No. and Size} **THREE 6" - 2 OFF ROTARY EACH 35 TONS/HR ; 1 OFF GEN. SERV. PUMP 12x8 1/2 x 12 duplex 120 ton/hr**
^{How driven} **BY MAIN ENG. BY INDEPT. STEAM ENG.**

Is the cooling water led to the bilges **No** If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements **one 12x8 1/2 x 12 duplex.**

Ballast Pumps, No. and size **Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size** **1 ROTARY 40 TONS/HR ON M. ENG. 1 STAND-BY, 50 TONS/HR. 8x8x10 D.P.**

Are two independent means arranged for circulating water through the Oil Cooler **YES.** Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces **3 of 3 1/2"** In Pump Rooms **1 of 4" in both.**

In Holds, &c. **In Fore Hold 2 of 2"; In Fore Hold Pump Rm, 1 of 2"; In Fore Store 2 of 2"; In Fore & Aft Cofferdams 1 of 4" in each.**

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **one of 5" on PORT SIDE one of 7" on STARBOARD SIDE.**

Are all the Bilge Suction pipes in Holds and ~~Tunnel~~ **Well** fitted with strum-boxes **Yes.** Are the Bilge Suctions 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 **Yes.**

Are all Sea Connections fitted direct on the skin of the ship **Yes.** Are they fitted with Valves or Cocks **with Both.**

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates **Yes** Are the Overboard Discharges above or below the deep water line **above.**

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel **Yes** Are the Blow Off Cocks fitted with a spigot and brass covering plate **Yes.**

What pipes pass through the bunkers **of F. 4 Bone Suction from Aft Cofferdam** How are they protected **None necessary.**

What pipes pass through the deep tanks **None** Have they been tested as per Rule **Yes**

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **Yes**

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another **Yes** Is the Shaft Tunnel watertight **No TUNNEL. MACH. AFT.** Is it fitted with a watertight door **Yes** worked from **Yes**

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

Main/Air Compressors, No. **NONE** No. of stages **Stroke** Driven by **one by Steam Eng**

Auxiliary Air Compressors, No. **Two** No. of stages **2** Diameters **120 cub. ft of free air per min at 350 lbs/sq in** Driven by **one by 2 1/2 hp Oil Eng.**

Small Auxiliary Air Compressors, No. **NONE** No. of stages **Diameters** **Stroke** Driven by **one by 2 1/2 hp Oil Eng.**

What provision is made for first charging the AIR RECEIVERS — **BY STEAM DRIVEN AIR COMPRESSOR.**

Scavenging Air Pumps, No. **NONE** Diameter **Stroke** Driven by **one driving a 25KW ELEC. GEN. at one end and a RENVELL AIR COMP. at other.**

Auxiliary/Engine crank shafts, diameter ^{as per Rule} **6" dia** Position **ON STARBOARD SIDE OF ENG. ROOM.**

Has the Auxy. Oil Eng been Constructed under Special Survey. — **Yes. See Nottingham Cert No C992 dated 9/1/42.**

4805A. 2 G. 8" - 10 1/2
40 BHP @ 400 revs
CONT'D P.T.O.
003671-003678-0220

Steam driven compressor removed 10.43

Have they been made under Special Survey. **Yes.** state no. of Report, none issued on Certificate.

AIR RECEIVERS:—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.**
High Pressure Air Receivers, No. **None** Cubic capacity of each Internal diameter thickness
 Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Actual
Starting Air Receivers, No. **ONE.** Total cubic capacity **500 cu ft.** Internal diameter **5'-6 1/4"** thickness **1 1/16"**
 Seamless, lap welded or riveted longitudinal joint Material **Steel** Range of tensile strength **28 to 32 tons** Working pressure by Rules **371 lbs** Actual **350 lbs**
 End plates **26 to 30 tons**

IS A DONKEY BOILER FITTED? **Yes** If so, is a report now forwarded? **Yes.**
 Is the donkey boiler intended to be used for domestic purposes only. **No. Also used for Steam Aways, etc.**
PLANS. Are approved plans forwarded herewith for Shafting **CRANK SHAFT 7/8/41. Sent with MV. EMPIRE CAVALIER.** Receivers **6/1/43.** Separate Fuel Tanks
 (If not, state date of approval) **Thrust shaft 6/8/42 JS & Int. 6/1/43**
 Donkey Boilers **Yes 6/1/43.** General Pumping Arrangements **No. 16/5/41** Pumping Arrangements in Machinery Space **Yes 3/12/42**
 Oil Fuel Burning Arrangements **Yes 8/12/42**

SPARE GEAR.

Has the spare gear required by the Rules been supplied. **Yes.**
 State the principal additional spare gear supplied **As per attached list.**

The foregoing is a correct description, for **H. LESLIE & CO. LIMITED** Manufacturer. **R. J. F. J. J.** DIRECTOR.

1942.
 Dates of Survey while building: During progress of work in shops -- **Jan. 9, 17, Feb. 3, 18, 25, 27, Mar. 5, 16, 17, 20, 26, 31, Apr. 2, 3, 17, 20, 29, May 6, 12, 13, 15, 17, 22, July 17, 25, 29, 31, Aug. 4.**
 During erection on board vessel -- **5, 10, 17, 20, 21, 22, 26, 28, 31, Sep. 1, 4, 7, 8, 10, 12, 14, 17, 18, 24, 25, 29, 30, Oct. 1, 2, 5, 6, 7, 12, 14, 15, 20, 21, 23, 26, 29, 30, Nov. 2, 4, 5, 6, 10, 11, 18, 25, 27, 29, 30, Dec. 2, 4, 8, 9, 24, 28, 1943, Jan. 4, 11.**
 Total No. of visits **84.**

Dates of Examination of principal parts—Cylinders **21/8/42** Covers **as Cyls.** Pistons **20/4/42** Rods **8/9/42** Connecting rods **7/12/42**
 Crank shaft **25/9/42** Flywheel shaft **17/9/42** Thrust shaft **17/9/42** Intermediate shafts **7/9/42** Tube shaft
 Screw shaft **24/8/42** Propeller **24/8/42** Stern tube **31/7/42** Engine seatings **17/8/42** Engines holding down bolts **30/11/42**
 Completion of fitting sea connections **24/9/42** Completion of pumping arrangements **28/12/42** Engines tried under working conditions **28, 29, 30, 31, Dec. 42, and 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1943.**
 Crank shaft, Material **7 Stl** Identification Mark **11691 HAI 20-5-42** Flywheel shaft, Material **7 Stl** Identification Mark **10897 HAI**
 Thrust shaft, Material **7 Stl** Identification Mark **10897 HAI** Intermediate shafts, Material **7 Stl** Identification Marks **10897 HAI**
 Tube shaft, Material **None.** Identification Mark Screw shaft, Material **7 Stl** Identification Mark **10897 HAI.**

Is the flash point of the oil to be used over 150° F. **Yes** Identification Marks on Air Receivers: **LOYD'S TEST 550 LBS/SQ IN WP 350 LBS. 5-10-42 AW. AWJ**
 Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with **Yes** on Air Receivers:
 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 **not desired**
 Is this machinery duplicate of a previous case **Yes** If so, state name of vessel **NICANIA H. Leslie's yard No 648 No. Rpt No 100,491. Eng No 3975**

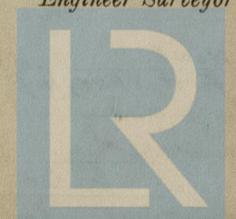
General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been constructed under Special Survey in accordance with the approved plans and the Society's Rules, and the materials and workmanship are good.
The machinery has been efficiently fitted on board the vessel, tested under working conditions at moorings with satisfactory results, and is eligible in my opinion, for record + LMC 1.43, and notations DB, WP 180 lbs, FD, CL. OIL ENG. MACHY AFT.

NEWCASTLE-ON-TYNE.

Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee .. £ **6. -** : When applied for,
 Special £ **100. 2.** : **2 FEB 1943**
 Donkey Boiler Fee £ **23. 6.** : When received,
 Starting Air Recⁿ fee. .. £ **4. 4.** :
 Travelling Expenses (if any) 19.

Committee's Minute **TUE 16 FEB 1943**
 Assigned **+ Lurb. 1.43**
DB-180 lbs oil Eng. Ch

A Watt
 Engineer Surveyor to Lloyd's Register of Shipping.

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