

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.** 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 Superchargers** 4 stroke cycle **H.** Single or double acting **Single**
Maximum pressure in cylinders **700 lb/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 m.m.**
All built. ^{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} **358 m.m.** Screw Shaft, diameter ^{as per Rule} **400 m.m.** Is the ^{tube} ~~screw~~ 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
^{as fitted} **20 m/m** ^{as fitted} **15 m/m** 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 **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** If so, state type **Yes** 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. Br.** whether Moveable **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 **2** Can one be overhauled while the other is at work **YES.**
Pumps connected to the Main Bilge Line { No. and Size **THREE VIXI - 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 **Yes**
Ballast Pumps, No. and size **one 12x8 1/2 x 12 duplex.** 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 DUB.
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 Ford Hold 2 of 2; In Ford Hold Pump Rm, 1 of 2; In Ford Store 2 of 2; In Ford R. 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 Tunnels 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 **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 **2** Diameters **120 cub. ft of free air per min** Driven by **one by Steam Eng**
Auxiliary Air Compressors, No. **Two** No. of stages **2** Diameters **at 350 lb/sq in** Driven by **one by 2900 lb. Eng.**
Small Auxiliary Air Compressors, No. **NONE** No. of stages **2** Diameters **at 350 lb/sq in** Driven by **one by 2900 lb. 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 REVELL AIR COMP. at other.**
Auxiliary/Engine crank shaft, 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 City & Co. 992 dated 1/1/42.**
CONTE P.T.O.

Steam driven
compressor removed 10.43Register
ation4808A. 2 G. 8"-10"
40 BHP @ 400 revs.
003671-003678-0220

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. ✓
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. 37 1/2 lb
End plates. 26 to 30 tons Actual. 350 lb

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 Aueys. etc.
PLANS. Are approved plans forwarded herewith for Shafting. CRANK SHAFT 7/8/41. Sent with MV. EMPIRE CAVALIER.
(If not, state date of approval) Thrust shaft 6/8/42. Receiver 6/11/43. Separate Fuel Tanks. ✓
Donkey Boilers. ✓ 6/11/43. General Pumping Arrangements. No. 16/5/41 Pumping Arrangements in Machinery Space. Yes 3/12/42
Oil Fuel Burning Arrangements. ✓ 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 of the machinery of the vessel, for W. H. HAWTHORN, LESLIE & CO. LIMITED
R. S. Poluech. Manufacturer.

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.
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 shaft. 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. Decr. 42
Crank shaft, Material. 7 Stl Identification Mark. 11691 HAI Flywheel shaft, Material. 7 Stl Identification Mark. 10897 HAI
Thrust shaft, Material. 7 Stl Identification Mark. 10897 HAI Intermediate shaft, 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. ✓
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with. Yes
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 and No 648 New 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 lb, FD. CL.
OIL ENG. Machy aft.

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

Committee's Minute TUE 16 FEB 1943
+ Lmb. 1.43
Assigned DB - 180 lb oil Eng. Ch

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

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.)