

REPORT ON OIL ENGINE MACHINERY,

Aug - No. 97701

Received at London Office

Date of writing Report 29th July 1939. Port of **NEWCASTLE-ON-TYNE**
When handed in at Local Office **Newcastle** Date, First Survey **22 April 1938** Last Survey **27th July 1939**
No. in Survey held at Reg. Book **35327** on the **Single** Screw vessel **TORINIA** Tons Gross **10364** Net **6178**
Number of Visits **104**

Built at **Wallsend.** By whom built **Swan Hunter & Wigham Richardson Ltd** Yard No. **1561** When built **1939**
Engines made at **St Peter's Works, Newcastle** By whom made **R.W. Hawthorn Leslie & Co Ltd** Engine No. **3956** When made **1939**
Donkey Boilers made at **St Peter's Works** By whom made **R.W. Hawthorn Leslie & Co Ltd** Boiler No. **3956** When made **1939**
Brake Horse Power **4660** Owners **Anglo Saxon Petroleum Co Ltd** Port belonging to **London**
Nom. Horse Power as per Rule **628** Is Refrigerating Machinery fitted for cargo purposes **No.** Is Electric Light fitted **Yes.**
Trade for which vessel is intended **Ocean Going.**

IL ENGINES, &c. Type of Engines **Hawthorn Workshop Airless Injection Supercharged** 2 or 4 stroke cycle **4** Single or double acting **Single**
Maximum pressure in cylinders **700 lbs/sq in** Diameter of cylinders **650 mm** Length of stroke **1400 mm** No. of cylinders **10** No. of cranks **10**
Mean Indicated Pressure **135 lbs/sq in** Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **855 mm** Is there a bearing between each crank **Yes.**

Revolutions per minute **120** Flywheel dia. **None** Weight **✓** Means of ignition **Compression** Kind of fuel used **Diesel oil.**
Crank Shaft, dia. of journals as per Rule **464 mm** as fitted **475 mm** Crank pin dia. **475 mm** Crank Webs Mid. length breadth **900 mm** Thickness parallel to axis **373 1/2 in**
as fitted **475 mm** Mid. length thickness **285 mm** Thickness around eye hole **210.5 mm**

Flywheel Shaft, diameter as per Rule **None.** as fitted **None.** Intermediate Shafts, diameter as per Rule **351 mm** as fitted **440 mm** Thrust Shaft, diameter at collars as per Rule **369 mm** as fitted **460 mm**
Tube Shaft, diameter as per Rule **✓** as fitted **✓** Screw Shaft, diameter as per Rule **386 mm** as fitted **440 mm** Is the shaft fitted with a continuous liner **Yes.**

Bronze Liners, thickness in way of bushes as per Rule **194 mm** as fitted **21 mm** Thickness between bushes as per Rule **14.5 mm** as fitted **16 mm** Is the after end of the liner made watertight in the 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 **Continuous**
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 **Light full length.**

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 the tube shaft **No.** If so, state type **✓** Length of Bearing in Stern Bush next to and supporting propeller **1547 mm**
Propeller, dia. **16'-3"** Pitch **12'-3"** No. of blades **4** Material **M. Bronze** whether Moveable **Solid** Total Developed Surface **90** sq. feet

Method of reversing Engines **Servomotor** 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 mm** 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 tank**

Cooling Water Pumps, No. **Two** **one Rotary on main engine** **one Steam Centrifugal** Is the sea suction provided with an efficient strainer which can be cleared within the vessel **Yes.**
Bilge Pumps worked from the Main Engines, No. **Two** Diameter **Rotary** Stroke **-** Can one be overhauled while the other is at work **Yes.**
Pumps connected to the Main Bilge Line No. and Size **Two Off 35 tons/hour** How driven **Main Engine** **one G.S. Pump 8"x8"x10" about 100 tons/hour.** **Steam.**

Is the cooling water led to the bilges **overboard** 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 **one - 8"x8"x10" duplex.** **General Service Pump.** Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size **one Rotary - 50 tons/hr.** **one Standby 8"x8"x10" Duplex Steam Driven.**

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 **one aft well 4" dia, one R & one S fore 4" dia each** In Pump Room **4nd 3rd dia aft in each**
In Holds, &c. **Ford Hold 3 @ 2 1/2" dia, Ford Peak Flat 2 @ 2" dia.** **one 5 1/2" G.S. Pump & one 7" heavy duty 6 I.C.W. Pumps.**

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **one 5 1/2" G.S. Pump & one 7" heavy duty 6 I.C.W. Pumps.**
Are all the Bilge Suction pipes in Holds and Tunnels fitted with strum-boxes **Yes.** Are the Bilge Suctions in the Machinery Spaces **Yes.**
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 **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 **None.** How are they protected **✓**
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 **Yes** Is it fitted with a watertight door **✓** worked from **✓**
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. **✓** No. of stages **✓** Diameters **✓** Stroke **✓** Driven by **✓**
Auxiliary Air Compressors, No. **one** No. of stages **2** Diameters **120 cu ft per min against 350 lbs/sq** Stroke **✓** Driven by **Diesel**
Small Auxiliary Air Compressors, No. **one** No. of stages **2** Diameters **184 - 206 mm** Stroke **160 mm** Driven by **Steam**
Scavenging Air Pumps, No. **None** Diameter **✓** Stroke **✓** Driven by **✓**

Auxiliary Engines crank shafts, diameter as per Rule **Grimsby Ltd 20948** as fitted **Amsterdam Ltd 15544** No. **one 3 Cyls oil eng air compressor set and one 2 Cyls Kromhout oil eng 20kw Dynamometer Set** Position **Both on Starboard side in Engine Room.**

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. *Two* Total cubic capacity *1000 cu ft* Internal diameter *5'-3"* thickness *7/8"*
 Seamless, lap welded or riveted longitudinal joint *T.R.O.B.S.* Material *Steel* Range of tensile strength *Shell 28637mo* Working pressure by Rules *358 lb/10'*
 Actual *350 lb/10'*

IS A DONKEY BOILER FITTED? *Yes Two.* If so, is a report now forwarded? *Yes.*
 Is the donkey boiler intended to be used for domestic purposes only *No.* For *Steam Auxiliaries etc.*

PLANS. Are approved plans forwarded herewith for Shafting *10/5/38 + 24/5/38.* Receivers *25/7/38.* Separate Fuel Tanks *2/5/38.*
 Donkey Boilers *5/4/38.* General Pumping Arrangements *26/4/38* Pumping Arrangements in Machinery Space *21/3/38.*
 Oil Fuel Burning Arrangements *21/3/38.* " " at Ford End *4/11/39.*

SPARE GEAR.

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

The foregoing is a correct description,

R. & W. HAWTHORN, LESLIE & CO. LIMITED Manufacturer.

Dates of Survey while building
 During progress of work in shops-- *1938* Apr. 22 June 9 July 5, 18, 24, Sep. 5, 10, Oct. 21, 25, 26, 28, Nov. 3, 7, 15, 16, 21, 23, 25, 30, Dec. 3, 7, 12, 14.
 During erection on board vessel-- *1939* Jan. 3, 10, 11, 18, 21, 24, 26, 28, Feb. 1, 2, 6, 8, 9, 10, 13, 14, 15, 17, 20, 23, 27, Mar. 1, 3, 4, 6, 9, 14, 16, 17, 21, 22, 23, 27.
 Total No. of visits *104.*

Dates of Examination of principal parts—Cylinders *21-10-38* Covers *21-10-38* Pistons *23-11-38* Rods *9-2-39* Connecting rods *23-11-38*
 Crank shaft *14-3-39* Flywheel shaft *✓* Thrust shaft *16-3-39* Intermediate shafts *27-4-39* Tube shaft *✓*
 Screw shaft *5-4-39* Propeller *5-4-39* Stern tube *3-4-39* Engine seatings *8-5-39* Engines holding down bolts *9-6-39*
 Completion of fitting sea connections *3-5-39* Completion of pumping arrangements *21/7/39* Engines tried under working conditions *27-7-39*
 Crank shaft, Material *Steel* Identification Mark *14044 + 14045* Flywheel shaft, Material *✓* Identification Mark *✓*
 Thrust shaft, Material *Steel* Identification Mark *5897* Intermediate shafts, Material *Steel* Identification Marks *5896*
 Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Steel* Identification Mark *5886*
 Is the flash point of the oil to be used over 150° F. *Yes.* *Share 5887.*

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 *oil tanker* 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, &c.) *The machinery has been constructed under Special Survey in accordance with the Society's Rules and approved plans. The materials and workmanship are sound and good. The machinery was efficiently installed on board, tested & manoeuvred on completion under working conditions & found satisfactory. The machinery of this vessel is eligible in our opinion to be classed and to have the notation of "oil engine" and records of + LMC 7, 39 and TS Ch.*

The amount of Entry Fee .. £ 6 : - :
 Special £ 106 : 8 :
 2 Donkey Boilers Fee ... £ 27 : 16 :
 2 Starting Air Receivers
 Travelling Expenses (if any) £ 8 : 8 :
 When applied for, *[-4 AUG 1939]*
 When received, *10. 8. 19 1939 14/8*

L. Peckett & A. Watt
 Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute

Assigned

+ LMC 7.39 Oil Eng
2DB 180 lb CL



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 Foundation

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