

# REPORT ON OIL ENGINE MACHINERY.

10 FEB 1934

Received at London Office

Date of writing Report

19

When handed in at Local Office

9<sup>th</sup> Feb 1934 Port of Belfast

No. in Survey held at Reg. Book.

Belfast

Date, First Survey 16<sup>th</sup> Feb 1933 Last Survey 5<sup>th</sup> Feb 1934

Number of Visits 96

Single on the Twin Triple Quadruple Screw vessel

"ISIPINGO"

Tons { Gross 7069.15 Net 4311.63

Built at Belfast By whom built Workman, Clark (1928) Ltd Yard No. 530 When built 1934-2  
 Engines made at Belfast By whom made Workman, Clark (1928) Ltd Engine No. 530 When made 1934  
 Donkey Boilers made at Annan By whom made Lockman & Co Annan Ltd Boiler No. 12489 When made 1933  
 Brake Horse Power 5850 Owners Bank Line Ltd Port belonging to Belfast  
 Nom. Horse Power as per Rule 1165 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes  
 Trade for which vessel is intended India - Africa 23<sup>18</sup> 40<sup>15</sup>

**OIL ENGINES, &c.**—Type of Engines Workman, Clark, Sulzer Airless Injection 2 or 4 stroke cycle 2 Single or double acting Single  
 Maximum pressure in cylinders 780 lbs/sq in Diameter of cylinders 600 mm Length of stroke 1040 mm No. of cylinders 6 No. of cranks 6  
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 740 mm Is there a bearing between each crank yes  
 Revolutions per minute 135 Flywheel dia. 6.9 ft Weight 5 tons Means of ignition Compression Kind of fuel used Heavy oil  
 Crank Shaft, dia. of journals as per Rule As approved Crank pin dia. 390 mm Crank Webs Mid. length breadth 580 mm Thickness parallel to axis 245 mm  
 as fitted 390 mm Mid. length thickness 245 mm Thickness around eye hole 184 mm  
 Flywheel Shaft, diameter as per Rule As approved Intermediate Shafts, diameter as per Rule As approved Thrust Shaft, diameter at collar as per Rule 11.419"  
 as fitted 10 7/8" as fitted 15.5" 390 mm  
 Tube Shaft, diameter as per Rule As approved Screw Shaft, diameter as per Rule 11.9553" Is the tube shaft fitted with a continuous liner yes  
 as fitted 12" as fitted 12" Is the screw shaft fitted with a continuous liner yes  
 Bronze Liners, thickness in way of bushes as per Rule 32 Thickness between bushes as per rule 32 Is the after end of the liner made watertight in the  
 as fitted 11 as fitted 33 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 yes

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 yes  
 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 yes  
 Propeller, dia. 13 ft Pitch 17'-3" No. of blades 4 Material Bronze whether Moveable yes Total Developed Surface 50 sq. feet  
 Method of reversing Engines Compressed air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication Forced  
 Thickness of cylinder liners 35 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water-cooled or lagged with non-conducting material yes If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine yes

Cooling Water Pumps, No. 2 Dunsdale 'Upright' 150 tons per hr. 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. None Diameter 150 mm Stroke 150 mm Can one be overhauled while the other is at work yes  
 Pumps connected to the Main Bilge Line { No. and Size 4. 2 - Dunsdale 'Centrix' 200 tons/hr. 1 - Damsort 'Duplex' 100 tons/hr. 1 - Dunsdale '505' 95 tons/hr. How driven Electric motors.  
 Ballast Pumps, No. and size 2. 1 - Dunsdale 'Centrix' 200 tons/hr. 1 - Damsort 'Duplex' 100 tons/hr. Lubricating Oil Pumps, including Spare Pump, No. and size 3 - LPS 5 tons HP 5 tons/hr. Driven by electric motors.  
 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 2 - 3" 1 - 2 1/2" in tunnels In Pump Room yes

In Holds, &c. No. 1 hold 2-3" No. 2 hold 2-3 1/2" Deep tank 2-3" No. 3 hold 2-3" No. 4 hold 2-3"  
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 3-5" 1-5" to tunnel well.  
 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 yes  
 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 yes  
 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 yes How are they protected yes  
 What pipes pass through the deep tanks Fore hold bilge pipes 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 yes worked from Upper deck  
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork yes

Main Air Compressors, No. None No. of stages 2 Diameters 11 1/2" & 9 1/4" Stroke 7" Driven by Electric motors  
 Auxiliary Air Compressors, No. 2 No. of stages 2 Diameters 6" & 2 1/2" Stroke 4 1/2" Driven by Steam  
 Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 1250 mm Stroke 600 mm Driven by Main engines  
 Scavenging Air Pumps, No. Per Engine - 1 D.A. Tandem Diameter 1250 mm Stroke 600 mm Driven by Main engines  
 Auxiliary Engines crank shafts, diameter as per Rule As approved No. 4 Position 2 each side of main engine room  
 as fitted 6"

**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 950 cu ft. Internal diameter 6'-6" thickness 1 1/4"  
 Seamless, lap welded or riveted longitudinal joint yes Material Steel Range of tensile strength 25/32 tons Working pressure 423 lbs/sq in  
 Starting Air Receivers, No. 2 - Main Receiver for main engines. 1 - Aux Receiver for aux engines. Total cubic capacity 11.2 cu ft. Internal diameter 2'-0" thickness 5/8" Working pressure 423 lbs/sq in  
 Seamless, lap welded or riveted longitudinal joint yes Material Steel Range of tensile strength 25/32 tons Working pressure 423 lbs/sq in  
 Dished ends 26/30 tons

IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

Rpt.

Is the donkey boiler intended to be used for domestic purposes only?

PLANS. Are approved plans forwarded herewith for Shafting *Crank shaft 10/3/33. Tunnel shaft 31/1/33. Screw shaft 31/1/33.* Receivers *4/2/33.* Separate Tanks *4/4/33. 1/5/33. 28/7/33.*

Donkey Boilers *Yes* General Pumping Arrangements *Yes* Oil Fuel Burning Arrangements *Yes*

SPARE GEAR.

Has the spare gear required by the Rules been supplied? *Yes*

State the principal additional spare gear supplied *See separate list.*

The foregoing is a correct description.

PRO WORKMAN CLARK (1928) LIMITED,

*J. Bunnings*

Secretary.

Manufacturer.

Dates of Survey while building: During progress of work in shops -- *Feb. 16. 20. 21. 24. Mar 1. 22. Apr 3. 11. 13. May 15. 18. 21. 24. 25. 30. June 2. 7. 8. 9. 12. 13. 19. 25. 26. 27. 29. July 4. 6. 7. 18. 20. 24. 25. 26. 27. 28. 31. Aug 1. 3. 4. 7. 9. 14. 15. 16. 18. 22. 23. 24. 25. 28. 30. Sept. 4. 5. 12. 14. 18. 20. 22. 25. 27. 28. 29. Oct 2. 3. 4. 10. 12. 18. 30. Nov. 2. 3. 6. 9. 10. 13. 14. 15. 20. 28. Dec. 6. 11. 15. 21. 1934 Jan 5. 8. 17. 18. 25. 26. 27. 31. Feb 1. 25. = 96*

Dates of Examination of principal parts - Cylinders *11/4/33. To 28/8/33* Covers *30/5/33 to 28/8/33* Pistons *13/12/33.* Rods *13/12/33.* Connecting rods *13/12/33.*

Crank shafts *13/12/33.* Flywheel shaft *✓* Thrust shafts *13/12/33.* Intermediate shafts *15/8/33.* Tube shaft *✓*

Screw shaft *28/7/33. 18/8/33.* Propellers *23/8/33.* Stern tubes *19/5/33 to.* Engine seatings *3/11/33. 14/11/33.* Engines holding down bolts *3/11/33. 14/11/33.*

Completion of fitting sea connections *23/1/34.* Completion of pumping arrangements *18/1/34.* Engines tried under working conditions *31/1/34.*

Crank shaft, Material *Steel.* Identification Mark *J.K.W. 8/8/33.* Flywheel shaft, Material *✓* Identification Mark *✓*

Thrust shaft, Material *Steel.* Identification Mark *J.K.W. 8/8/33.* Intermediate shafts, Material *Steel.* Identification Marks *4508. R.L.A. 15/1/33.*

Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Steel.* Identification Mark *P. LLOYD'S No 4507. R.L.A. 18/8/33.*

Is the flash point of the oil to be used over 150° F. *Yes.*

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 *Yes.* If so, have the requirements of the Rules been complied with *Yes.*

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 of this vessel has been constructed under special survey. The materials and workmanship are sound and good. The machinery, auxiliary machinery & donkey boiler have been efficiently installed in the vessel and the main and auxiliary machinery tried out under working conditions at a moored & sea trials with satisfactory results. In my opinion, the vessel is now eligible for notation in the Society's Register Book of + LMC 2,34. CL. Donkey boiler pressure 100 lbs. Fitted for oil fuel 2,34 FP above 150° F. Electric light.*

The amount of Entry Fee .. £ 6 : 0 : When applied for, Special ... £ 129 : 2 : 6 : 9-76. 1934 Donkey Boiler Fee ... £ : : When received, Air Reservoir. Travelling Expenses (if any) £ 8 : 8 : 21-2. 1934

*John K. Williams*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 16 FEB 1934*  
Assigned *+ Lmb. 2,34 S.B. 100th oil fuel*

